



# JOURNAL OF THE KERALA NATURAL HISTORY SOCIETY

TRIVANDRUM  
1976 NOVEMBER









**THE JOURNAL OF THE KERALA  
NATURAL HISTORY SOCIETY**

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## CONTENTS

	Page
Editorial	1
Forests and Wild Life of Kerala	
<i>S. Sathis Chandran Nair</i>	6
The Birds of Trivandrum :	<i>C. Mohankumar</i> 15
A Naturalist in the Sahyas :	<i>J. C. Gouldsbury</i> 33
Reminiscences of my Forest Life :	<i>S. Parameswaran</i> 41
Botanical Exploration of Kerala :	
<i>Prof: C. A. Lawrence</i>	50
There is Nothing Fishy about Fish :	<i>V. K. Puthoor</i> 55
Conservation : <i>S. S. Nair</i> ...	63
Some Reflections on our Forest Developmental Projects	
<i>S. Parameswaran</i>	67
Kerala Natural History Society - Report for 1974-'75	73
List of Advertisers	80







## *Editorial*

### INAUGURAL OR VALEDICTORY ?

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Why should Kerala have a Natural History Society ?

The State of Kerala, particularly rich in Unions, Associations, Sanghams and Samitis, where even beggars appear to have a Union to protect their interests, does not seem to feel the need of an organisation, not of officials but of citizens, to hold a watching brief for its natural resources, its own habitat and its inhabitants.

Such organisations exist in almost all countries today. Even in those Western countries where the governors and the governed are alike well-known for their love of nature, it is more often unofficial organisations which look after wildlife and its habitat. The United States of America have an efficient and long-established Fish and wild Life Service. Still, many places of natural beauty and of value as the home of wildlife were saved from commercial exploitation, shortsighted development projects, and even from the unrelenting grip of the all-powerful Defence Services by unofficial bodies such as the Audubon Society and the innumerable small natural history societies. Britain is justly famed for its concern for its wildernesses and wildlife and has hoary establishments such as the Royal Society for the Protection of Birds etc. Yet, many a beauty spot or patch of forest, marsh or hill slope was saved from 'exploitation' and 'development' only by the efforts of groups of naturalists and conservationists. It is unnecessary to multiply instances; we need only remember that W. W. F. (World Wild Life Fund) and I. U. C. N. (International Union for the Conservation of Nature) are organisations of a purely 'private' nature, not sponsored by any government or political group.

In our country so far we have had only one society (devoted to natural history and conservation) that has



secured world recognition and done something to rouse public interest in our flora and fauna. It is high time each State in our Republic had a society or club of its own to foster interest in local plants and animals as well as to resist ill-advised moves to destroy these.

Let us take the case of our own State. Not only do we have Government Departments entrusted with the responsibility to protect and scientifically utilise our natural resources (e. g. the Forest Department, the P. W. D., the K. S. E. B., the Department of Tourism etc.), there are also numerous Committees, Boards and Authorities (which have a number of non-official members) to look after these assets of the State. But the policies and programmes of these Departments, Authorities and Boards work at cross purposes. These Departments etc. are so organised that one can often, if not always, override the objections raised by another to any of its pet projects. See how easily and rapidly more and more of our Reserved Forests are being eaten up by hydroelectric, irrigation, housing, resettlement and other projects. Within the same Department, as one of the articles explains in detail (see : Some Reflections on Forest Development Projects) the right hand does not know what the left hand does, or is powerless to interfere.

As things stand now, the public appears to be as impotent as it is indifferent to schemes which are unprofitable in the long run or even of doubtful immediate advantage. If there is an association, union or society which has the conservation of nature as its avowed object, a member may draw attention to any infructuous project he might come to hear of, press the organisation to examine the pros and cons of the project and interfere if it thinks necessary in the long term interests of the State and the country. This was what happened when a hydro-electric project threatened to deprive the famous Mudumalai Sanctuary of its heart and lungs.



It should be unnecessary to point out that while the feeble voice of the individual citizen will only fall on the deaf ears of the initiators and supporters of a dangerous proposal, an organisation, once it has gained some recognition, can act effectively or, at any rate, maintain a sustained effort, more easily secure the support of the press, the politician and the common man. We live in a world where it is the vociferous crowd, not the whispering of reason or common sense, that gets a hearing.

And that is why all lovers of nature have to unite ; that was why an attempt was made to form a society of the conservation-minded and of the amateur and professional naturalists of this State. It was the firm conviction that such a society can be of some value in other ways too that encouraged us. More than anything else the existence of such a society can be a powerful incentive to those who have an inherent interest in nature. It is quite unlikely that India would have produced a naturalist of international standing like Dr. Salim Ali if there had not been the Bombay Natural History Society to foster his adolescent interest. When looking for advice and encouragement, many a youngster eager to learn about nature, comes up against a blank wall and in utter frustration takes up some other hobby. A local natural history society can guide the earnest novice, encourage the enthusiastic amateur, collect the odds and ends of information which are a precious by-product of the amateur's explorations and by publishing these, supplement the more valuable, but much more restricted, researches of professional biologists.

As a member of the Kerala Natural History Society you are perhaps aware of all the grounds for wanting to keep this Society alive and making it really vital. But you may not know its history. More than 30 years ago, Sri N. G. Pillai, then a Curator in the Trivandrum Museum, presumably because of his association with Salim Ali and the Bombay Natural History Society, tried to start a similar



Society at Trivandrum. In spite of the blessings of the then Dewan of Travancore and the support of many other persons of eminence, the Society did not flourish.

Towards the end of 1973, to a few naturalists who met by chance at Trivandrum, it appeared to be worth-while to make one more attempt to start a Naturalists' Club or Society. Others who heard of this vague idea were very optimistic and promised enthusiastic support. (See para 1 of the Secretary's Report).

The initial enthusiasm, unfortunately, was short-lived. The office-bearers were left with the problem of justifying the establishment of this Society, of keeping up a show of some activity, and even of keeping alive the interest of the few who were willing to attend the monthly meetings.

Our experience makes us wonder whether this issue of the Journal is an inaugural or a valedictory number. Are we laying a foundation stone or marking an infant's grave? The answer lies with you, the present members, and the public. Without public support, without the enthusiastic backing of every citizen who cares for Nature, our Society cannot carry on. Its future is in your hands. If you have any practical suggestions in this matter, please write to the Secretary before the matter slips from your mind.

A word about the contents of this issue of the Journal. Although the Executive Committee had resolved to ask for contributions from all members, and to print both popular and technical articles covering various fields of natural history, the problem of informing every member (mainly one of finding the money for printing a circular and paying the postage) proved intractable. If this issue of the Journal disappoints you, it is again for you to help the Committee do a better job.

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Even this issue of the Journal would not have seen the light of day but for the boundless zeal, determination



and energy of one member — Sri S. Parameswaran, a young man of 57 who, after his retirement from the Kerala Forest Department, as a Deputy Conservator, has started life afresh as Secretary of the South India Plywood Manufacturers' Association. Seeing that the Society's funds would not be enough to publish even its Report and Statement of Accounts, Sri Parameswaran canvassed for advertisements and aid from members of SIPMA and was able to collect nearly Rs. 1000/-. But for his vigorous campaigning, which met with such success largely because of his charm and perseverance, this number of the Journal could not have reached your hands. We, the other members of the Society, owe an enormous debt of gratitude to Sri Parameswaran as well as to the gentlemen who responded so promptly to his request for aid.

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# Forests and Wildlife of Kerala

The narrow strip of country lying between the Western Ghats and the Arabian sea constituting the linguistic state of Kerala, has a variety of habitat and a flora and fauna that are exceptionally rich. The almost unbroken massif of mountains soaring to 8000 feet at its highest, deep valleys receiving very heavy rainfall, the extensive plateaus of over 3000 feet elevation, the sheer escarpments and the foot hills, the gently undulating well-drained midlands and the extensive system of backwaters and sea coast, and the few dry rain-shadow areas like parts of the Marayoor valley, provide a spectrum of topography and biota unequalled in the country.

Over the centuries of slow human immigration and expansion, the coastal and midland forests gradually vanished, but the densely wooded mountains formed a vast, impregnable, continuous wildlife habitat harbouring the largest and most numerous concentrations of peninsular Indian wildlife.

Two waves of decimation have swept over the forests of Kerala in recent historic times. The first, in the second half of the 19th century, took place when the flood of European planters, carved out of the virgin wilderness vast plantations of tea, coffee and rubber. Most of the forests of the Nelliampathies, the High Ranges, and parts of the Cardamom and Ashambu Hills went under the axe and fire. Though the coffee blight outbreak of the early years of this century and the I World War led to the abandonment of some of these areas which reverted to the original forest, a greater part of the evergreen forest was lost forever. There was a slackening in the deforestation between the 1920's and 1940's when the Reserve forests were declared and rigorously protected. This period also saw the beginning of largescale conversion of natural vegetation to monocultural plantations. The outbreak of the II World War



marks the beginning of the final devastation. To meet the heavy demand for timber required in the war effort and to boost food production, extensive areas of pristine wilderness were cleared. Under the surging human torrent seeking newly opened land, most of the plateau forests in Wynad and the forests all along the foothills of the Western Ghats vanished in a couple of years. The devastation did not spare the highly vulnerable river catchment areas or the precipitous hill slopes. In the twilight of the British Raj in the early transitional days to national Government, most of the private forests of Malabar floated down to the Kallai timber yards. Even after independence and the opting for planned progress, the plight of the little bits of forest remaining did not improve. Extensive inroads were made in the name of one developmental scheme or another. The innumerable irrigation and power projects flooded most of the extensive valley forests. For all requirements of unoccupied land, forest land became the automatic choice. In the name of uplifting the down-trodden masses, ecological crimes became the norm of the day. The immediate and long - range adverse effects, climatological and environmental, were conveniently forgotten or not realized. As the last straw, even what is being maintained as protected forest gives little hope. On various pretexts the last stands of the indigenous vegetation are being supplanted by monocultures, often of ecologically unsuited exotics. Such horrendous ecocide passes under the label of 'management'. Though forest statistics list under the deceptive name of 'man-made' forests an area of 130, 500 hectares (i. e. 14% of the total forest land), almost all of this area of monocultures has been chopped out of stable, climax forest biocommunity. The area of pocket reserves and reserves degraded and written off as arable land is unknown. All this is happening in a state with about 20% of the total land under forests, and where the per-capita forest is 0.044 hectares. The once continuous stretch of forest (broken only by the Palghat Gap) along the eastern

half of the state is now in at least seven distinct segments with no possibility of a relinking ever taking place. Most of the once abundant wildlife vanished though we religiously celebrate 'Vanyaprani Saptah' every year. Habitat destruction and heavy hunting pressure have accounted for them.

Gradually there has been a growing concern for the forest and its native inhabitants, and a few half-hearted protective measures are being taken. The number of Wildlife sanctuaries increased though the plight of the animals within has not improved. Long-range management policies for these 'name board sanctuaries' have never been evolved. Trained personnel and sufficient funds were never available. From a scientific point of view, there is no inventory of the variety of habitats or a conscious effort to safeguard them. Tourism, recreation, wildlife, forest exploitation, encroachment, cattle grazing, poaching, plantation activity, all rub shoulders in our sanctuaries. Even the current status of most of our wildlife is unknown. In spite of it all we have even now the potential to form a net work of nature reserves and wildlife sanctuaries of unexcelled quality and wealth.

### The Wildlife.

In Kerala, we have almost all the representative Peninsular Indian animals. The best known of these are Indian Elephant, Gaur (Bison), Sambar, Spotted Deer (Cheetal), Barking Deer, Mouse Deer (Chevrotain), Wild boar, Porcupine, Blacknaped Hare, Tiger, Leopard, Wild-dog, Jackal, Jungle Cat, Common Otter, Mongoose, Sloth Bear, Bonnet Macaque, Hanuman Langur, Nilgiri Langur, Lion-tailed Macaque, Slender Loris, Giant Squirrel etc.

Of the above mentioned, the Spotted Deer has a very limited distribution in Kerala. Favouring drier regions, it is found only on the Wynaad plateau, in some parts of the Anaimalais, the Nelliampathies, Marayoor and adjacent areas on the eastern side of the High Ranges. Similarly,



the Hanuman Langur is also found only in the Wynaad, Nilambur and Anaimalai regions.

Though once widespread over the rocky inaccessible ridges of the Western Ghats, the population of the Nilgiri Tahr has been greatly reduced and the animal survives only in parts of the High Ranges. Small relic populations occur in the Anaimalais, the Nelliampathies and Ashambu hills.

Some of the better-known peninsular animals not found within Kerala are the Nilgai, the Black Buck, the Four-horned Antelope, the Striped Hyæna and the Indian Wolf.

Besides the better known larger mammals, our forests harbour a number of little-known but no less interesting species, many of the subspecies or races of which are found only in the Western Ghats. Though the exact distribution ranges of many of the following species are unknown, these could occur within our state :-

Leopard Cat (*Felis bengalensis*), Rusty spotted Cat (*Felis rubiginosa*), Fishing cat (*Felis viverrina*), Malabar civet (*Viverra megaspila civettina*) (which has the dubious distinction of being the only animal listed by the I. U. C. N. as extinct within the state), Brown palm civet (*Paradoxurus jerdoni*), Common palm civet or the Toddy cat (*Paradoxurus hermaphroditus*), Ruddy mongoose (*Herpestes smithi smithi*), Stripe necked mongoose (*Herpestes vitticollis vitticollis*). Brown mongoose (*Herpestes fuscus fuscus*) Indian fox (*Vulpes bengalensis*), Smooth Indian otter (*Lutra perspicillata*), Clawless otter (*Aonyx cinerea nirnai*), Nilgiri marten (*Martes gwatkinsi*), Ratel or Honey Badger (*Mellivora capensis*), Tree shrew (*Anathana ellioti*), Hedge hog (*Paraechinus micropus*), Dusky striped squirrel (*Funnambulus sublineatus sublineatus*), Grizzled giant squirrel (*Ratufa macroura*), Small Travancore flying squirrel (*Petinomys fuscocapillus layardi*), Large brown flying squirrel (*Petaurista petaurista philippensis*) and Indian pangolin (*Manis*

crassicaudata). There are also a large number of species of rodents and bats.

The avifauna is exceptionally rich, with a marked affinity to that of the Eastern Himalayas. But the exclusion of the coastal strip by the mountain range and the nature of the terrain seem to keep away some migrants especially the aquatic birds that are a common sight in the bird sanctuaries elsewhere in India.

Though not as noticeable as the mammals or birds, the reptilian and amphibian fauna is also exceptional in the number of species and exclusively endemic types. The snake-like burrowing amphibians (Caecilians or Apodans) are worth mentioning in this context. The estuarine crocodile (*Crocodylus porosus*) has almost completely been wiped out in the state, and the smaller marsh crocodile (*Crocodylus palustris*) occurs only in a few rivers and reservoirs.

## THE WILDLIFE SANCTUARIES

### The Periyar Sanctuary

This premier sanctuary of Kerala extends over 777 sq. kilometers encompassing the catchment areas of the Periyar and the Mullayar and the artificial Periyar lake. The sanctuary is mostly unspoilt wilderness, of shola forest, rolling grasslands and the creeks of the lake. Except for the afforestation of a small area of grassland, no alteration of the vegetation has been done. The easy access, developed facilities and wide publicity have resulted in a high tourist pressure. The recent inclusion of this sanctuary in the Project Tiger may tighten up protection and lead to the expansion of the area. The difficult terrain and large area curtail human interference but also make protection difficult. The only private enclaves within are unfortunately in the Evergreen Zone near the Sivagiri range which harbours the very rare Liontailed macaque. This area is disturbed and needs much greater protection. Parts of the sanctuary, especially upstream along the two rivers, are



more or less unknown and the habitat conditions and wildlife status are unexplored. The development of the Sabarimala temple has virtually sealed that area to wildlife and the unfortunate attempt to develop the Mangaladevi temple ruins at the other end of the sanctuary could have the same result. The primary threat this magnificent sanctuary faces is uninformed, over-imaginative 'development'. Proposals for improvement include opening more roads in the interior, introducing exotic animals, introducing facilities for water sports in the lake and other recreational facilities in the wilderness. The 'developers' who are planning sea plane ports and mini-recetracks within the sanctuary forget that the sanctuary is for the wildlife and the habitat and not for well heeled pleasure seekers.

### **The Parambikulam Sanctuary**

This sanctuary, situated in between the Anaimalais and the Nelliampathies in the Palghat District, constitutes the devastated remnants of one of the richest wildlife havens of the entire country. The protected area lies around the reservoirs of Parambikulam, Thunakkadavu and Peruvaripallam dams constructed by Tamil Nadu in Kerala. Of the total Sanctuary area of 285 sq. kilometers, more than 100 sq. km is already plantations of teak and eucalyptus, about 50 sq. km the water spread, and of the remaining 135 sq. km a good deal is bare rock and area unusable by wildlife. In spite of the very restricted natural vegetation, the wildlife is even now rich, and possibilities of seeing all the common species of mammals are greater than at Periyar. This sanctuary is accessible only through the Anaimalai sanctuary of Tamil Nadu. The sanctuary head quarters located at Thoonakkadavu is 48 km. from Pollachi via Topslip. Declared as Thoonakkadavu sanotuary in 1962, the Parambikulam area was also included only in 1973. Teak plantations dating from 1916, Mr. Hugh Woods' grave (Working Plan officer of the early 1900's) and the famous giant teak - 'Tellikkal or Kannimara Teak - with a trunk 50 meters high and of 6 meters' girth, are additional attractions

of the sanctuary. Most of the accessible areas here are teak plantations, and very extensive areas of evergreen forest between Parambikulam and the Karimalagopuram Peak (4721') have been clear-felled and abandoned. Tourist facilities are nonexistent. Together with the Anaimalai sanctuary, Parambikulam offers an extensive protected wildlife habitat containing the largest Gaur population, some Lion tailed macaque, a very large Nilgiri langur population, Hanuman langurs, Bonnet macaques, Nilgiri tahr, Spotted deer - to mention a few species. Factors threatening this invaluable reserve include the further extension of plantations and the tangya cultivation of the cleared lands, the proposed Chalakudy - Vazhachal - Parambikulam road and intensive exploitation of bamboo for the rayons factory. In spite of the incredible habitat destruction, wildlife has survived because of the inaccessibility of the place. The proposed road and continuation of exploitation can spell its doom.

### **The Wynaad Sanctuary**

This sanctuary, located in the once rich Wynaad plateau, in the Kozhikode and Cannanore districts, is more of a buffer zone for the Nagarhole-Bandipur - Mudumalai sanctuary complex of Karnataka and Tamil Nadu. The sanctuary is in two distinct halves with large patches of private lands within, rendering effective protection impossible. Little of the original forest was spared by the encroachers, and plantations are eating up more and more of the tiny area saved. The more extensive forests in the northern part of the plateau have not been included within the sanctuary. Of the total 340 sq. km. of protected area, only a narrow strip along the Coorg border in the Begur reserve in the northern half, and a small portion of the Rampur reserve and Mavanhallu reserve in the south facing the Bandipur and Mudumalai sanctuaries, are of any value as wildlife habitat.

### **The Neyyar Sanctuary**

Located in the southernmost part of the Western Ghats within Kerala, this sanctuary of 128 sq. km. includes the



Neyyar dam and reservoir. Though only a sanctuary in name at present, the unspoilt evergreen forests are of great scenic charm, especially around Agasthya Mudi (6330'). Wildlife, though heavily poached and disturbed, is not rare. A very small population of Nilgiri Tahr and of the Lion-tailed macaque occurs here. Over-exploitation of the forests for minor forest produce, both authorised and unauthorised, greatly disturbs the wildlife. The gradual extension of cultivation along the reservoir margins will lead to habitat degradation. There is a plan, fortunately yet unimplemented, to construct a road linking Kottur in Kerala with Ambasamudram in Tamil Nadu through the very heart of the sanctuary. If ever this is done the sanctuary will cease to have any value. The proximity to Trivandrum, easy access and scenic beauty, could have made Neyyar a favourite holiday resort, but it has remained neglected.

### **The Eravikulam Sanctuary**

Though only recently taken over from the Kannan Devan Hill Products Company, the small - 97 sq. km. - Eravikulam Rajamalai sanctuary spread over the roof of Kerala around the Anaimudi (8842') is our best. The panoramic scenery, utterly pristine wilderness conditions and the exceptional wildlife concentration make it one of the richest of the wildlife havens in India. The towering hills, awesome valleys, the grassy plateau, sheer escarpments and shola forests are inaccessible for nearly half the year. This sanctuary contains more than 50% of the world population of the Nilgiri Tahr. The earlier owners kept this unique area totally untouched and well protected, but the State takeover seems to portend grave threats. Envisaged 'developments' include the laying of roads, building tourist hotels, stationing riding ponies etc. The argument for this is tourist potential and financial gain, but at the least disturbance the large Tahr herds, now so easily encountered in the plateau, will vanish for ever.

## The Peechi-Vazhani and The Idukki Sanctuaries

Like many other wildlife refuges in this country, these two sanctuaries are sad monuments to the past glory of the respective localities before 'man the developer' came along. The Peechi Sanctuary in the Trichur district and Idukki in Idukki district are 125 sq. km. and 70 sq. km. respectively. Their wildlife potential and long term status can be judged only after stabilization of the present conditions.

Our sanctuaries except in the case of Eravikulam and Periyar are created not because of any preconceived plan for habitat and wildlife preservation. The basic concept of habitat and wildlife preservation has undergone many radical changes as a result of tragic mistakes committed elsewhere. It is up to us to adopt the modern rational approach and safeguard our heritage. At present we are caught in the horns of the dilemma of development. What is to be left as it is and what is to be exploited, whether for consumptive utilization like timber extraction or for non-consumptive utilization such as tourism, we have to decide now. Left to the planners, the last of the wilderness will be converted to parking lots, luxury hotels and helipads, irrespective of whether there is any one to use them or not. Imbued with the mad impulse of commercial carnage, like the lemmings in a suicidal migration, our planners go on with 'development', destroying every thing with their touch.

It is time we realise that the limits of tolerable damage to the environment are long past. The time has come to set about protecting whatever remains pristine in nature, not out of any commercial motive, but to ensure our own perpetuation.

*S. Sathis Chandran Nair*



# The Birds of Trivandrum

C. Mohankumar

(with comments and additions by K. K. Neelakantan)

Kerala is one of the most interesting tracts of country for the Indian ornithologist. The avifauna here is rich and varied and consists of about 400 forms of which more than a quarter are winter visitors.

The bird watcher living in Trivandrum, the capital of Kerala, need not bother to pack up, wander into the countryside, or sit down in a ditch to see birds. Compared with other major cities of India, Trivandrum is almost rural. Even in the heart of the city we get a number of well-wooded, and in some parts almost thickly wooded, spots harbouring a multitude of birds. Ecologically, we have many different types of habitat in the city, each favoured by different kinds of birds. Thus we have thickly wooded or moderately wooded areas such as the Museum-Zoo campus, Cliff House, the Residency compound etc. sheltering the smaller species like warblers, munias, flycatchers, thrushes, and even hawks and owls; sandy or semi-arid habitats like those at the Air port or Thumba, with larks, pipits, lapwings, plovers and kestrels; marshes or swampy grassland such as those found at Karamanai, Veli, Thiruvallam and Anayara, where herons, egrets, waterhens, rails and snipes are seen; backwaters with thickets of holly, pandanus and other marsh plants, mainly at Akkulam and Veli, favoured by grebes, cormorants, stints, sandpipers and the Osprey; hilly terrain harbouring birds like swifts, thrushes, babblers etc ; open country and grassland (the golf links, the various stadia) and cultivated land, with hawks, drongos, larks, pipits and bee-eaters ; and, of course, a long sea coast with typical bird fauna like gulls, terns, plovers and sandpipers. Another important factor is the presence of the semi-desert biotope of the adjoining southern districts of Tamil Nadu. A number of birds like the Whitethroated Munia, Scavenger Vulture, Partridges, some shrikes and doves, are typical of

the aforesaid type of country. So, it is quite possible that some of these forms may occur in Trivandrum also.

Thus, on the whole, Trivandrum is not a bad spot for a bird watcher. Even by spending a few hours in our own backyard, we can see almost all the commoner birds of the countryside. So the familiar argument of having no time or opportunity to watch birds will not hold much water here. Even a casual stroll along the roads will be of immense help to the beginner in lengthening his list; only, he has to keep an eye and an ear open for the birds,

A number of the habitats described earlier have been undergoing destruction and retrogression during the recent past. Trees have been felled, and places where there used to be huge trees and thick secondary vegetation have been filled with concrete giants (e. g. Cliff House, Residency). Marshes and fields have been filled and built over. Notwithstanding all these changes the avifauna of Trivandrum remains rich even today.

Till this date (December 1975) I have come across some 90 different species of birds in the city, including winter visitors and vagrants. They are listed below with brief comments.

1. LITTLE GREBE. *Podiceps ruficollis*. Sparse. Noted at Veli, 3 solitary birds, January '75. None in June '75.
2. LITTLE CORMORANT. *Phalacrocorax niger*. Recent increase in numbers evident. 3 or 4 even in monsoon-filled ditches in and around the air port. Numerous in the lakes at Vellayini and Veli. On 24-vi-'75 saw one bird flying over Manacaud towards Vellayini with what looked like a twig in its bill. [ Breeds regularly March to June at Moondaiadappu near Nagercoil. KKN ]
3. POND HERON. *Ardeola grayii*. Common resident. Large numbers fly to roost somewhere south-east of the city. Nests seen near Vellayini



4. CATTLE EGRET. *Bubulcus ibis*. Seen only twice, at Pangode in October '73, and at Veli in January '75. [ Birds with buff heads seen regularly in fields near the city in April and May - KKN. ]
5. [ PURPLE HERON. *Ardea purpurea*. 3 or 4 at Veli and Akkulam, 25-1-'75. F. W. Bourdillon "found (it) abundant at the Vellayini Lake". about 80 years ago. KKN. ]
6. REEF HERON *Egretta gularis*, and Night Heron (*Nycticorax nycticorax*), are sure to be found. Notes of the Night Heron frequently heard at night. [ The author showed me Night Herons flying over the Padmanabhaswami temple at dusk on 25-xi-'75 - KKN. ]
7. LITTLE EGRET. *Egretta garzetta*. Common at Veli and Akkulam. A small breeding colony recently discovered at Kanyakulangara, 10 miles from Trivandrum. Season April-July.
8. SMALLER EGRET. *Egretta intermedia*. Not uncommon. Seen only at Akkulam.
9. LARGE EGRET. *Egretta alba*. Seen at Veli.
10. LITTLE GREEN BITTERN. *Butorides striatus*. Veli.
11. CHESTNUT BITTERN. *Ixobrychus cinnamomeus*. A few in the paddy fields at Karamanai during the rains.
12. BLACK BITTERN. *Dupetor flavicollis*. Mainly near Thumba and Manacaud, in rush-covered fields and pandanus clumps.
13. [YELLOW BITTERN. *Ixobrychus sinensis*. Unconfirmed sight record. Veli A pair on 11-1-'73 - KKN. ]
14. [OPENBILL STORK. *Anastomus oscitans*. 2 storks seen flying to the north-east on 1-xi-'70 over Kunnukuzhi could have been only of this species. KKN. ]  
[ DUCKS *Anatidae*. Said to be regular visitors to Vellayini. Saw 8 flying in formation south to north over Kunnukuzhi at 6.15 p. m. on 9.x.'70; flock of

12-15 flying south-east at 9-15 a. m. on 21.xii.'74 over Puthanchanthai - KKN.]

15. PARIAN KITE. *Milvus migrans*. Abundant locally. Hair-raising aerobatics over markets and slaughterhouse. Roost in rain trees behind Chalai market. Hundreds assemble by 6 p. m. and soar high up for a time before settling down. Nests within city limits. [On 23 -ix- '75 about 100 flew almost in single file SE to NNW between 6.10 and 6.15 p. m. KKN.]
16. BRAHMINY KITE. *Haliastur indus*. Never seen in the city. Common at Veli and along the coast. [Seen twice over the city: 27-xii-'64 and 17-i-'65 - KKN.]
17. SHIKRA. *Accipiter badius*. Regularly met with both along the coast and inland.
18. [BOOTED EAGLE. *Hieraaetus pennatus*. Regular winter visitor in small numbers. Often overlooked since it soars about with many pariah kites around it. KKN.]
19. OSPREY *Pandion haliaetus*. KKN saw one at Veli on 25-1-'75.
20. KESTREL. *Falco tinnunculus* One at the air port on 2-2-'75.
21. SHORT-TOED EAGLE. *Circaetus gallicus*. An eagle seen in December 1974 was most probably of this species.
22. [SHAHIN FALCON. *Falco peregrinus*. One recorded shot at Trivandrum in November 1893. In November '59 saw a falcon over Puthanchanthai which was probably a Shahn. KKN.]
23. RAILS and CRAKES seen at Veli and Akkulam, but not satisfactorily identified.
24. [RUDDY CRAKE. *Amauroroneis fuscus*. Unconfirmed sight record, Akkulam, 22-ii-'65 - KKN.]



25. WHITEBREASTED WATERHEN. *Amaurornis phoenicurus*. Fairly common in suitable habitat as at Kannammoola, Ulloor, Pulayanarkotta, Kunnukuzhi etc.
26. [ BRONZEWINGED JACANA. *Metopidius indicus*. 3 at Akkulam on 25-i-'75. KKN ]
27. PHEASANT-TAILED JACANA. *Hydrophasianus chirurgus*. A pair noted flying over Veli in February, 1975 [ 5-6, all in non-breeding plumage seen in Akkulam lake on rafts of weeds, 25-i-'75. KKN. ]
28. REDWATTLED LAPWING. *Vanellus indicus*. Often heard at night in the city. Common in the semi-arid habitats at Ulloor, Kulathoor and near the coast at Veli etc.
29. YELLOW-WATTLED LAPWING. *Vanellus malabaricus*. Remarks same as the above.
30. LITTLE RINGED PLOVER. *Charadrius dubius*. From mid-August all along the coast, often in flocks. Plover flocks include Sandpipers, Kentish Plovers and even a few Golden Plovers. [ LESSER SANDPLOVER quite common at Sankhumukham, Veli. KKN. ]
31. WHIMBREL. *Numenius phaeopus*. Noted, but not satisfactorily distinguished from Curlew, *Numenius arquata*. At Veli, Thumba and Sankhumugam.
32. COMMON SANDPIPER. *Tringa hypoleucos*. Winter visitor arriving in mid-September and found wherever there is water.
33. GREEN SANDPIPER. *Tringa ochropus*. Noted only twice, once at Veli and once at Manacaud. Notes of sandpipers and other waders often heard at night between August and April as they fly overhead.
34. [TURNSTONE. *Arenaria interpres*. 2 with Sandpipers and Ringed Plovers, Sankhumugam beach, 27-x-'66-KKN ]

35. SNIPE. *Capella spp.* Seen near Thumba in swampy places and slushy fields.
36. BLACKSHAFTED TERNLET (?) *Sterna albifrons* (?) Flock of 25 near the sandbar at Veli, January 1975.
37. BROWNHEADED GULL. *Larus brunnicephalus.* Reported from Akkulam.
38. BLUE ROCK-PIGEON. *Columba livia.* Very common and well distributed all over. A nest in the Secretariat, October, '74. Large colonial roosts in high buildings.
39. [ SOUTHERN GREEN PIGEON. *Treron phoenicoptera.* 4 in Zoo compound, 31-i-'71. KKN ]
40. [ SPOTTED DOVE. *Streptopelia chinensis.* Seen at Veli regularly. Golf Links, 6-xii-'73. KKN ]
41. ROSERINGED PARRAKEET. *Psittacula krameri.* Common. Suspect seasonal movements depending probably on the harvest season. Nests in the Residency noted often.
42. BLOSSOMHEADED PARRAKEET. *Psittacula cyanocephala.* Local and probably a seasonal visitor.
43. [ LORIKEET. *Loriculus vernalis.* Often seen and heard in the Museum compound. KKN ]
44. [ COMMON HAWKCUCKOO. *Cuculus varius.* Heard on 5-iv-'74 at Kannammoola. KKN ]
45. INDIAN KOEL. *Eudynamys scolopacea.* Numerous and common during breeding season, February to April. Then its loud 'ku-00 - ku-00 notes one of the most commonly heard bird sounds in the city, day and night. [ Males display and are most noisy in November and December. Very fond of sandalwood fruit. KKN ]
46. SOUTHERN CROW-PHEASANT. *Centropus sinensis.* Not uncommon but patchily distributed. Prefers well-wooded localities with good scrub growth.



47. [ BARN OWL. *Tyto alba*. One caught and brought to the Zoology Department, University College; one seen by K. N. Kailas in March '76 at the same place - KKN. ]
48. COLLARED SCOPS OWL. *Otus bakkamoena*. Not uncommon. Haunts well-wooded compounds, bamboo clumps. A group of 5 or 6 used to roost in a cane brake in the University College. [ On 2-x-'70, at 2 p. m. one flew into a room to escape from crows. KKN. ]
49. MALABAR JUNGLE OWLET. *Glaucidium radiatum*. Not uncommon. Habitat same as that of the Scops owl.
50. INDIAN HAWK-OWL *Ninox scutulata*. Not uncommon, but less often noticed than the Jungle Owlet. More often heard than seen. Has been found roosting 15 feet above ground in the Residency compound.
51. SPOTTED OWLET *Athene brama*. The commonest owl in the city. Haunts every old building. A pair once seen sitting under the tower clock over the Secretariat !
52. [ MOTTLED WOOD OWL *Strix ocellata*. I remember Sri N. G. Pillai saying that some years ago a Mottled Wood Owl "obligingly drowned itself" in the pool beside the old Museum building - KKN. ]
53. [ COMMON INDIAN NIGHTJAR *Caprimulgus asiaticus*. Sri Asokan, a member of the Society, has reported that the call of this bird is regularly heard at Kulathoor, near the Engineering College. KKN ]
54. [ ALPINE SWIFT *Micropus melba*. A few seen occasionally. I saw 6 to 8 flying over Puthanchantha at 07.15 hrs on 20-vii-1967. KKN ]
55. PALM SWIFT *Cypsiurus parvus*. Common, but local. The presence of palmyra palms in the southern parts of the city may account for the presence of this large and stable population. [ The Palm Swift can and does

roost and nest in areca palms though it prefers the palmyra. KKN ]

56. HOUSE SWIFT *Apus affinis*. Occasionally seen in good numbers with Palm Swifts.
57. PIED KINGFISHER *Ceryle rudis* Periodical visitor to tanks and ponds in the city. A favourite haunt is the "Padmatheertham" near the Padmanabhaswami temple.
58. COMMON CEYLON KINGFISHER *Alcedo atthis* Occurs locally in small numbers. A pair always present in the "Padmatheertham". Always found at Veli in many places.
59. WHITEBREASTED KINGFISHER *Halcyon smyrnensis* Fairly common; often seen in the stadiums.
60. BLACKCAPPED KINGFISHER *Halcyon pileata*. One seen at Veli in December '75.
61. GREEN BEE-EATER *Merops orientalis*. Prefers the quieter parts of the city, open ground and cultivation. In July '75 saw a flock of 8 sitting on the ground at Veli.
62. BLUETAILED BEE-EATER *Merops philippinus*. Winter visitor. Large numbers fly to a roost over the city, returning in the morning.
63. INDIAN ROLLER *Coracias benghalensis*. Confined to certain localities such as the stadiums, the Residency and the crumbling ruins near the Law College. Also regularly seen about the air port at Sankhumukham.
64. HOOPOE *Upupa epops*. Very occasional. The most recent record at Veli, on 25-i-'75.
65. SMALL GREEN BARBET *Megalaima viridis*. Common. Breeds December to April. Young in the nest in March and April generally.



66. CRIMSONBREASTED BARBET *Megalaima haemacephala* - Uncommon. Local and probably seasonal, since its 'tonk-tonk' is heard only when figs are in fruit.
67. MALABAR GOLDENBACKED WOODPECKER *Dinopium benghalense*. Not numerous, but regularly seen and heard [ Nests in the city, December to May KKN.]
68. [PITTA *Pitta brachyura*. Winter visitor haunting wooded compounds with sufficient undergrowth to suit its requirements. Heard regularly in the Museum compound. KKN ]
69. LARKS *Alaudidae* are present in good numbers, chiefly along the coastal belt, the air port and Veli. The species remain to be identified. There is an unconfirmed record of the Ceylon Bush Lark (*Mirafra assamica*) from Thumba.
70. EASTERN SWALLOW *Hirundo rustica*. Regular winter visitor. Found in loose rabbles hawking insects over paddy fields along the coast and over backwaters as at Veli.
71. REDRUMPED SWALLOW *Hirundo daurica*. Uncommon resident. Seen only at Veli (February '75) with Eastern Swallows.
72. BROWN SHRIKE *Lanius cristatus*. Uncommon winter visitor, early October to late April.
73. INDIAN ORIOLE *Oriolus oriolus*. Winter visitor to wooded compounds. I have seen it only once, in February, 1968 [ More common than C. M's record suggests. More than a dozen can be seen within the Museum-Zoo compound in December-January. KKN ]
74. BLACKNAPED ORIOLE *Oriolus chinensis*. Uncommon winter visitor.
75. BLACKHEADED ORIOLE *Oriolus xanthornus*. Not uncommon but patchily distributed. [ Juveniles seen on 15-xi-'64 and 10-xii-'67. KKN ]

76. BLACK DRONGO *Dicrurus adsimilis*. Local and patchy. Frequently seen in the University campus, the Residency and the stadiums. Curiously enough rather silent when within the city!
77. GREY DRONGO *Dicrurus leucophaeus*. Regular and common winter visitor.
78. ASHY SWALLOW-SHRIKE *Artamus fuscus*. Fairly common. [Numbers increase in June-July. Breed in the Thumba-Veli area. KKN]
79. GREYHEADED MYNA *Sturnus malabaricus*. Winter visitor. Flocks arrive by late August. Found roosting in large numbers on rain trees bordering a patch of fallow land at Killippalam. In the evening flocks dart along a route over the Zoo, the Secretariat and the Railway Station. On this route they have fixed halting places where they stop to feed or to assemble.
80. BLYTH'S MYNA *Sturnus malabaricus blythii*. Seasonal? Single birds and pairs seen occasionally. Often present in flocks of the nigrant race.
81. JUNGLE MYNA *Acridotheres fuscus*. Patchy and sparingly seen. Favours open grassland and tilled paddy fields. I have seen many family parties with callow nestlings mouth-fed by parents. [Used to be common in the Museum compound, but none noted there after 1971. The old trees full of holes in which Jungle Mynas nested regularly have disappeared. This could be the reason for the comparative rarity of this Myna in the Museum area now. KKN.]
82. COMMON MYNA *Acridotheres tristis*. Very common. Roosts with crows in and around the Museum compound. Nests in most of the larger buildings in the city as well as in holes in tree trunks. [Breeds April to September; chattering juveniles being bed by parents even in November. Most family parties seen in July - August KKN.]



83. INDIAN TREE PIE *Dendrocitta vagabunda*. Regularly met with. [A juvenile being fed by adults noted on 23-vii-71 and a family party with food-begging nestlings on 1-vii-'72. KKN.]

84. HOUSE CROW *Corvus splendens* and JUNGLE CROW *Corvus macrorhynchos*.

Both very common and abundant. Their common roost around the junction near the Corporation offices is notorious. Nesting from February to May. [Breeding seems to extend from December to May, though some begin building in November; I have seen juvenile House Crows in mid-November! The peak season is January to April when the local Koels too seem to breed. There is another peak during July-August. On 9-viii-'75 I saw a juvenile Koel being fed by a House Crow. The breeding of crows in the city, the probable influence of street-lighting on their breeding seasons, and the relations between crow and koel should prove to be an interesting subject for study. KKN.]

85. [LARGE CUCKOO-SHRIKE *Coracina novaehollandiae*. Seen by Mr. Ashford, a visiting bird watcher, in January, 1971. One seen by me at Kunnukuzhi on 9-iv-1971 KKN.]

86. [BLACK-HEADED CUCKOO-SHRIKE *Coracina melanoptera*. Pair seen in the University office compound on 31-1-'71 KKN.]

87. [COMMON-WOOD-SHRIKE *Tephrodornis pondicerianus*. Seen at Pulayanarcotta on 23-ii-'65, KKN]

88. CEYLON IORA *Aegithina tiphia*. Occasional visitor to wooded compounds.

89. JERDON'S CHLOROPSIS *Chloropsis cochinchinensis*. Uncommon and patchy. Seen only in zoo compound.

90. [GOLDFRONTED CHLOROPSIS *Chloropsis aurifrons*. Seen once in the University compound. KKN]

91. REDWHISKERED BULBUL *Pycnonotus jocosus*. One of the commonest birds in the city. Have seen nests and nestlings early in June. Sometimes use nesting boxes.
92. REDVENTED BULBUL *Pycnonotus cafer*. Very rare. Seen only once, at Pangode. [ Found only in some areas such as Pulayanarkotta, Kannammoola & the Golf Links, Kowdiar KKN ]
93. WHITEHEADED BABBLER *Turdoides affinis*. The commonest babbler, perhaps the only one, in Trivandrum. Haunts well-wooded compounds e. g. the University office, Zoo, and scrub covered terrain in Pulayanarkotta Ulloor, Barton Hill etc.
94. BROWN FLYCATCHER *Alseonax latirostris*. Regular winter visitor in small numbers.
95. PARADISE FLYCATCHER *Terpsiphone paradisi*. Evidently a winter visitor only. Females seem to be more common. The Museum compound a favourite haunt.
96. STREAKED FANTAIL-WARBLER *Cisticola juncidis*. Patchy and local. Met with in standing paddy and reed patches.
97. TAILOR BIRD *Orthotomus sutorius*. Common and widely distributed. Even the tiniest garden attracts it. (Nests seen in February, April, May, June, July and October. June-July appears to be the favourite period for nesting KKN ]
98. GREENISH LEAF-WARBLER *Phylloscopus trochiloides*. Common and numerous winter visitor. Arrives by the 1st week of October.

A number of other warblers including Reed Warblers Booted Warblers etc. also spend the winter in the city, but specific identification has proved very difficult. [ The Great Reed Warbler is suspected to be a resident in the reed patches at Veli KKN ]



99. MAGPIE ROBIN *Copsychus saularis*. Common. Song heard from January to March. Nestlings seen in June 1973. [ Juveniles being fed in October '74; KKN ]
100. [WHITETHROATED GROUND-THRUSH *Zoothera citrina*. Mr. Ashford and Dr. (Miss) A. M. Mani, found one in the Zoo compound on 30-i-1971 KKN ]
101. WHITE WAGTAIL *Motacilla alba*. Winter visitor in small numbers. At times small flocks on the coast and even by the side of the main road.
102. PIED WAGTAIL *Motacilla madaraspatensis*. Fairly common resident. Breeds December to April. Nests among the rafters of the Secretariat, the Residency etc.
103. GREY WAGTAIL *Motacilla caspica*. Winter visitor in small numbers, but often seen near ponds and fields.
104. PIPITS *Motacillidae*. Several kinds of pipits certainly occur in the city. Chiefly met with near the coast and in hilly country on the eastern side. The Malay Pipit and Richard's Pipit are sure to be among these.
105. TICKELL'S FLOWERPECKER *Dicaeum erythrorhynchos*. Common all over the city because there are still many loranthus-infested old trees about. A nest from which the nestlings had left a few days ago was taken at Veli on 19-i-'75. [ Apart from the nest mentioned by C. M., I have found nests in June 1972/July '73, February '74, July '75 and September '76. The juvenile's bill colour rather than that of the adult justifies the name 'erythrorhynchos.' KKN.]
106. PURPLERUMPED SUNBIRD *Nectarinia zeylonica*. Common and often in company with Loten's Sunbird, Tickell's Flowerpecker and Leaf-warbler. Breeding January to May. I have seen a pair carrying cotton and fibre late in June also. [ In October-November 1974 there was a nest in a neighbour's Garden. KKN ]
107. LOTEN'S SUNBIRD *Nectarinia lotenia* (?) or PURPLE SUNBIRD *N. asiatica* (?)

An all black male sunbird with a massive, curved bill is regularly seen in gardens all over the city. It does have an eclipse plumage. Very very occasionally a similar bird with a thinner, shorter bill is also seen. Both Loten's and the Purple Sunbird occur, though the former is commoner. [Nests seen in January '65 & June '72. Salim Ali saw specimens of both species in August 1933 in Trivandrum. KKN]

109. HOUSE SPARROW *Passer domesticus*. Locally very common. Once I found five very young nestlings and their mother electrocuted inside the neon-light board in a hotel.
110. YELLOWTHROATED SPARROW *Petronia xantho-collis*. Seasonal (?) In the city I have noticed them only in winter.
111. WHITEBACKED MUNIA *Lonchura striata*. An occasional group of 4 or 5 may appear in the garden and then vanish as mysteriously as they came. More common in the suburbs. [Nests seen in curtain creeper in various homes. KKN]
112. BLACKHEADED MUNIA *Lonchura malacca*. Rare. May be accidental stragglers from the south where they are common.

As shown by the above list, Trivandrum, with more than 100 species of birds to its credit, is in no way poor in avian wealth. A proper survey is bound to add many species to this list.

- Reference:
1. Salim Ali. THE BIRDS OF KERALA 1969
  2. Neelakantan K. K. KERALATHILE PAKSHIKAL. 1958.
  3. Journal of the Bombay Natural History Society : Vol. 70 (3), December 1973.



*Editorial Note :*

In addition to the birds listed above, we append a list of the birds recorded in Salim Ali's *The Ornithology of Travancore & Cochin*, (*The Journal of the Bombay Natural History Society*, Vols. 37 - 39.)

PERSIAN SHEARWATER *Procellaria lherminieri*. Ferguson got one at Veli.

SPOTTEDBILLED PELICAN *Pelecanus philippensis*. Ferguson saw 3 flying over the parade ground.

LESSER FRIGATE BIRD *Fregata minor*. Ferguson got one from Perumanthorai near Trivandrum.

MARSH HARRIER *Circus aeruginosus*. Vellayini Lake. SA

INDIAN HOBBY *Falco severus*. One shot at Kowdiar on 27-4-1874.

BLACKBREASTED (RAIN) QUAIL *Coturnix coromandelica*  
Two collected by Fry are in the British Museum.

EASTERN BAILLON'S CRAKE *Porzana pusilla*. The British Museum has a specimen taken at 'Charki' (= Chakka ?), Trivandrum, on 18-xi-1878.

LIKH or LESSER FLORICAN *Syphiotides indica*. A specimen was shot in 1876 in some rushes at Trivandrum.

SOCIABLE LAPWING *Vanellus gregarius*. Two shot by Ferguson in January 1900 in paddy fields in Trivandrum

KENTISH PLOVER *Charadrius alexandrinus*. Beach, Trivandrum S A.

FANTAIL SNIPE *Capella gallinago*. Vellayini Lake, unconfirmed SA.

JACK SNIPE *Capella minima*. Ferguson used to see it and on damp rushy ground in Trivandrum.

INDIAN STONE PLOVER (Stone curlew) *Burhinus oedinenemus*. Ferguson found it at Veli.

GREAT SKUA *Catharacta skua*. A specimen was taken on 20-ix-1933 at Poojappura.

GREYFRONTED GREEN PIGEON *Treron pompadora*. Pulayanarkotta. SA.

PIED CRESTED CUCKOO *Clamator jacobinus* Specimens taken at Kuttyani in September 1898 are (were?) in the Trivandrum Museum.

INDIAN CUCKOO *Cuculus micropterus*. Unconfirmed aural record. SA.

THE CUCKOO *Cuculus canorus*. A specimen was shot in February 1893 at Trivandrum.

BANDED BAY CUCKOO *Cacomantis sonneratii*. Unconfirmed aural record. SA.

CRESTED SWIFT *Hemiprocne longipennis*. Kuttyani SA.

CHESTNUTHEADED BEE-EATER *Merops leschenaulti*. Kuttyani. SA.

PIED HORNBILL *Anthracoceros coronatus*. A specimen was shot 9 miles from Trivandrum in Ferguson's days.

CEYLON GREEN BARBET *Megalaima zeylanica*. SA saw a specimen which had been taken at Vembayam.

RUFIOUS WOODPECKER *Micropternus brachyurus*. Pulayanarkotta. NGP.

YELLOWFRONTED PIED (MAHARATTA) WOODPECKER *Dendrocopos maharattensis*. Pulayanarkotta SA/NGP.

CEYLON BUSH LARK *Mirafra assamica*. Akkulam, Golf Links & Kuttyani. SA.

ASHYCROWNED FINCH-LARK *Eremopterix grisea*. Beach, Trivandrum. SA.

SMALL SKYLARK *Alauda gulgula*. Vellayini. SA.

BRONZED DRONGO *Dicrurus aeneus*. Pulayanarkotta, Kuttyani SA.

COMMON WOOD-SHRIKE *Tephrodornis pondicerianus*. Public Gardens, Thirumala, Akkulam, Kuttyani. SA.

SMALL MINIVET *Pericrocotus cinnamomeus* Cattle Farm, Mukunnimala, Nettayam. SA.

GREYHEADED BULBUL *Pycnonotus priocephalus*. A specimen dated 25-v-1895 is (was) in the Trivandrum Museum.

RUBYTHROATED BULBUL *Pycnonotus melanicterus*. NGP took specimens from Mukkunnimala.

WHITEBROWED BULBUL *P. luteolus*. Nettayam. SA.

BLACKHEADED BABBLER *Rhopocichla atriceps*. Kutt-  
yani. SA.

RUFOUS BABBLER *Turdoides subrufus*. Thirumala. SA.

JUNGLE BABBLER *T. striatus*. Trivandrum. SA.

WHITEBROWED FANTAIL FLYCATCHER *Rhipidura aureola* Golf Links. Akkulam, Pulayanarkotta, Pattom, Tirumala, Kuttyani. S. A.

GREAT REED WARBLER *Acrocephalus stentorius* Vella-  
yini SA.

SHAMA *Copsychus malabaricus*. Kuttyani. SA.

RICHARD'S PIPIT *Anthus novaeseelandiae*. Vellayini SA.

MALAY PIPIT *Anthus n. malayensis*. Golf Links, Vellayini  
SA.

NILGIRI FLOWERPECKER *Dicaeum concolor*. Trivandrum  
SA

BAYA WEAVERBIRD *Ploceus philippinus*. Beach, Cattle  
Farm, Kuttyani. SA.

STREAKED WEAVERBIRD *Ploceus manyar*. A specimen  
dated 21-vi-1877 taken at Vellayini is in the British



Museum. Bourdillon found thousands nesting at Vellayini in June (Eighteen seventies?).

SPOTTED MUNIA *Lonchura punctulata*. Beach. SA.

Note: "SA" means seen, or specimen secured, by Salim Ali and/or N. G. Pillai during the Travancore Ornithological Survey. 1933.

## കേരള സംസ്ഥാന ഭാഗ്യക്കുറി



എല്ലാ മാസവും നിങ്ങൾക്കുവേണ്ടി  
ഒരു മഹാ നിധി ഒരുക്കുന്നു !

നൂറിലധികം ലക്ഷപ്രഭുക്കളെ ഇതിനകം സൃഷ്ടിച്ചു!

നിങ്ങളുടെ നന്മയും നാടിന്റെ നേമും വേണ്ടിയുള്ള  
ഈ പരിപാടി നിരന്തരം തുടരുന്നു

നിങ്ങൾ മുടക്കേണ്ടത് 1 രൂപ മാത്രമാണ്

കേരളസംസ്ഥാന ഭാഗ്യക്കുറിവകുപ്പ്.

*With best wishes from:-*

**VIJAYA PRESS**

**PALGHAT.**

# A Naturalist in the Sahyas\*

J. C. GOULDSBURY,

Lower Vagavurai Estate, Munnar.

I wonder how many people in India know that the highest mountain south of the Himalayas is to be found in the state of Kerala. Anaimudi or Elephant's Head rises to a height of 8841 feet above sea level, and is situated to the east of Cochin on the mountainous backbone of the Western Ghats. It is about the country around this magnificent peak that I am going to talk.

The main industry in the area is the growing and manufacture of tea and the fertile valleys and slopes at the lower elevations are clothed with orderly rows of bushes which produce this valuable commodity. Higher up, on the ridges, hilltops and plateaux, where the soil is too poor for the cultivation of any crop, rolling grassland holds together the thin layer of topsoil and the area, interspersed with small jungle sholas, has remained undisturbed by human agency from time immemorial. The climate is temperate, with shade temperatures never rising above 85 degrees Fahrenheit, but often falling below freezing point during the nights between November and March. This picture would present a veritable eldorado, were it not for the ferocity of the South West Monsoon, which, accompanied by howling gales, blankets of mist and teeming rain between June and October, makes life exceedingly unpleasant for those whose livelihood takes them outdoors during this period. In some parts of the area an annual precipitation of upto 300 inches of rainfall is normal.

The natural flora of the area is varied and colourful though, as may be expected in this temperate climate, it does not compare with the brilliant tones of the flowers which grow in the plains. Undoubtedly the most interesting

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\*Courtesy All India Radio, Trivandrum.

phenomenon which occurs at intervals between seven and twelve years is the flowering of the *Strobilanthes* (*Strobilanthes kunthianus*). This shrub grows to a height of about two feet, and prefers the poorer soils on steep grassland slopes. When it reaches its periodic flowering cycle, whole areas of the hillside are mantled in blue, presenting a breath-taking spectacle. It is said that the neighbouring Nilgiris or Blue mountains took their name from the colour of this plant. Other shrubs which occur throughout the area are the *Osbeckias*, of which several species are found. These prefer the richer soil in shola edges, and the most common display rich purple flowers. Again, on poorer soils, and mostly at elevations above 6,000 feet the *Rhododendron* is scattered around the hillsides. Though very beautiful, the flower of this species is invariably red, and does not display the varied hues of those which affect the Himalayas. More than 40 kinds of orchids are found, both of the ground variety, and of those which grow on trees and rocks. While none of them can compete in size and flamboyance with orchids from hotter, more humid climes, the delicacy of their flowers is unsurpassed. Probably the most common are the *Ceolognes* which bloom in March and drape their bunches of purest white flowers from rock and branch. The most colourful is the Bamboo Orchid (*Arundina bambusifolia*) which has a beautiful crimson flower, measuring two inches across. Many varieties of *Habenaria* are found and *Habenaria elliptica* has an exquisite scent. During the South West Monsoon the Nilgiri Lily blooms in profusion in many places. The large white bell-shaped flower measuring four inches by six inches has an extremely powerful scent, which is almost over-powering when the flower is displayed indoors. These are only a very few of the numerous species found. The hills are a botanist's paradise, and a walk through the grassland will disclose the most fascinating variety of plants from Sundews and Gentians to Buttercups and Daisies. In the more sheltered places at the lower elevations, enormous trees of a variety of species stretch their branches to the sky, amongst which the Rosewood,



Blackwood and Ironwood are the most magnificent. At higher elevations the tree growth is stunted by wind and weather, but many of these trees produce fruits which are greatly sought-after by the bird population.

Though the bird life at these high elevations is neither so varied nor so colourful as that encountered in more tropical climates, nevertheless, there are more than enough to provide boundless interest to the ornithologist and the ordinary bird-watcher, however relatively drab in plumage they may be. The Grey Jungle Cock, whose feathers were sought after for so many years by fishermen for making salmon and trout flies, skulks about in the areas closest to human habitation, and the introduction of the tea bush has probably done much to protect him and his family from birds of prey. When he is in full plumage his raucous crow competes with that of his domestic brother.

Perhaps one of the most curious phenomena is the absence of the Indian House Sparrow. This bird is said to follow human settlement, but is entirely absent from this particular area although well-established in villages less than ten miles away. The most common of all garden birds is the Redwhiskered Bulbul which, while undoubtedly performing an excellent service to the gardener by keeping the numerous insect pests at bay, is a great destroyer of fruit and vegetables. Cultivators in this area should perhaps be most indebted to the white-eye. This tiny bird congregates in enormous flocks, and in his quiet and industrious way searches out and devours countless insects. His dainty nest, composed of cobwebs and moss, can sometimes be seen suspended in vegetation on the roadside. Of the wagtail family the Large Pied Wagtail is a resident, and most bungalows have their nesting pair around. His cousin the Grey Wagtail is a migrant, and the influx of large numbers of these birds at the end of the South West Monsoon is a happy reminder that the worst of the rains are over. Apart from the very occasional duck straggler from the migration flights passing overhead, this species is

entirely absent. Recently constructed reservoirs have attracted Moorhens, Dabchicks, Darters, Redwattled Lapwings and Sandpipers. As one progresses higher up the mountain, so the bird population becomes more sparse, and one encounters few in the open apart from the Pipit, Skylark and Bushchat and Swifts, Martins and Swallows. The awe-inspiring Black Eagle can sometimes be seen soaring over the hilltops and sholas on its continual search for the smaller mammals it preys upon, such as the Indian Giant Squirrel and new-born young of Nilgiri Tahr and Barking Deer. There is a wealth of raptors of which the most common is the Kestrel, and perhaps the most rare is the Grass Owl which has only been sighted on very few occasions.

In this day of so-called civilisation and advance few of us are fortunate enough to have both the opportunity and inclination to watch and marvel at the ways of nature, while at the same time refraining from the desire to destroy and make personal profit from it.

On the day on which I began to compile notes for this talk, while strolling in my garden I heard the hoots of a troop of Nilgiri Langurs across the valley and the sharp alarm call of a Barking Deer. A Jungle Cock challenged the world as the sun was sinking, and with the aid of a telescope I watched a party of Sambar on a nearby hilltop. The two small stags were jousting with each other, horns interlocked, and three hinds with their attendant calves were feeding peacefully around them. Further along the ridge a solitary Nilgiri Tahr 'saddleback' lay warming himself in the last rays of the sun and a mixed herd of the same species grazed undisturbed some distance below him. All this, while just below me in the valley loud mechanical noises issued from a tea factory, and a large population of workers pursued their Sunday occupations in and around their houses.

The animals just mentioned are only a few of the wealth of fauna in the area. Elephants, which some twenty

years ago were exceedingly rare are now met with frequently, due to the fact that they have been gradually squeezed out of the surrounding country as deforestation has progressed, and have found some measure of security here. Of the four Tigers which prowl around, news has just been received that one is about to reproduce. Panthers, though seldom encountered, betray their presence by their footmarks. Sambar are on the increase, and the magnificent Gaur grazes undisturbed in the remoter fastnesses. One of the most interesting species is the Nilgiri Tahr, of which these hills hold more than half the total world population. The Tahr is a mountain goat closely related to the Himalayan Tahr, and it would seem odd that this animal strayed so far from the Himalayas, as it must have done, many many years ago.

That ruthless hunter and cruel killer, the Wild Dog, seems to fluctuate in numbers. For all his unpleasant ways he serves a useful purpose in the pattern of nature, not only in controlling the herbivore population, and weeding out the weaklings, but also by his method of hunting down his prey he disperses widely those of his quarry who are fortunate enough to escape, and thus unwittingly curbs in-breeding. The Wild Pig is certainly the villain of the piece, since his nocturnal wanderings are concentrated mainly on invading kitchen gardens and other places of food cultivation. Of the monkey clan the area is fortunately mainly free of the destructive Bonnet Macaque which creates such havoc in the plains, and his cousins the Nilgiri Langur and the comparatively rare Lion-Tailed Macaque are adepts at minding their own business. It is most unfortunate that amongst the uninformed members of the public it is believed, quite unjustifiably, that the flesh of the last two species is a cure for certain human ailments. Among the smaller animals the hare is seldom seen here, and never at the higher altitudes. No doubt the wet and comparatively cold atmosphere restricts him to the drier warmer foothills where he multiplies happily. Civets, Martens and Mongooses pursue their lawful activities, but



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# SYLVAN PLYWOOD MILLS

KALLETUMKARA

H. O. KOTTAYAM

also account for many of the ground-feeding birds and small mammals. The 'fretful porpentine', is a destructive creature, and has found that the roots of the tea bush are very much to his liking, to the annoyance of the tea planter.

The Clawless Otter frequents the rivers and streams, and subsists mainly on frogs and crabs since the only fish, apart from the trout and Carp which were introduced, is an insignificant fellow who grows no larger than four inches.

Such unpleasant creatures as Scorpions are fortunately not found at all here, and though there is a variety of snakes, the majority of them are harmless. However, the Russels Viper is common in certain places but confines himself to a few grassland areas seldom visited by humans. Cobras are only encountered in some areas below 4,500 feet altitude—though some itinerant snake-charmers would have us believe otherwise! - and although people are occasionally bitten the result is seldom fatal. An interesting theory holds that the reason for this is that their venom is less virulent here because of the colder climate.

The king Cobra is located exclusively in the heavy jungles to the west, and is infrequently met with by sawyers and woodsmen.

Butterflies and moths abound, and at certain times of the year unending streams of certain species of the former migrate through the district.

All in all, human dwellers here are exceedingly fortunate in the comparatively few noxious creatures that inhabit the area, and naturalists are lucky to have such a vast amount of interesting material to study.

Let us hope that the new Wild Life Protection Act, now adopted in practically all the States, will help to protect the country's boundless wealth of wildlife, and that everyone from all walks of life will come to appreciate more and more this marvellous heritage which it is our fortune to enjoy.

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# Reminiscences of My Forest Life

(S. Parameswara Iyer)

Forest Life should not be understood to mean living in the forest in close contact with or even among the wild animals. Of course a Forester may have chances of seeing or coming across wild animals in his life, but, as the saying goes, animals in nature live their life and do not interfere unless interfered with. Wild animals are usually shy, with rare exceptions of course, and they live in their own world and do not normally attack unless provoked. Even the rat when cornered may leap at a man's throat. Live and let live is the normal policy of all wild animals.

They do kill at times. That is usually to satisfy their necessity and not for simple pleasure as with man who mostly shoots just for the pleasure of killing. Animals kill for the satisfaction of their hunger or for self-protection. They seldom kill for their enjoyment; what they kill they utilise. In short, they kill out of necessity. If the carnivores of the forest indulged in the pleasure of killing, the herbivores of the forest would have been completely exterminated long ago. In nature, a balance is maintained between an optimum number of carnivores and herbivores, each having its independent and happy existence breathing God's free air in its own environment.

This freedom of theirs gets upset when man, the sophisticated two legged animal, interferes with them for his own peculiar and selfish reasons. Just as we discuss animals, I feel they may also be discussing human beings in their own way. The point remains that we are not able to understand what they talk with each other about us. It is very doubtful whether their appraisal of man will in anyway be creditable to man who calls himself the most sophisticated being endowed with COMMONSENSE.

The sounds of elephants are common in forests. The elephant produces different sounds in different situations. For instance, there is the long-drawn trumpeting which it does while feeding or roaming about. This sound expresses no alarm or anxiety because the animal is happy in its domain. We can go on our way, it will go on its own way. Each to itself. Another slightly shrill and sharp sound, almost like that produced when bamboo is split longitudinally into two, is produced by the animal, when it is frightened, pained or agitated. This sound gives warning that the animal is disturbed, and it is better not to cross its path. There is a third sound which is usually called "KOKKAL" a sharp, short interrupted screeching sound "ko ko ko" produced by the elephant indicating that it is prone to mischief. There is a fourth sound-like the mouth of an empty pot struck with a flat board- a sort of short metallic "BUNG" sound. This is produced by hitting the ground with the end of its trunk. This sound gives notice that the elephant is about to charge. This sound is popularly known as "kolavili". It is usually accompanied by kicking of the ground with its front limbs and the animal coils the trunk around its tusks keeping the end of the trunk directed towards its mouth and commencing a jump or a short run with raised head. Then there is a fifth sound quite unlike the previous one, a long drawn 'mur-mur' or 'pur' given out in friendly recognition or while it is with its mate. Does not the above show that elephants communicate with each other?

It has been stated before that animals go their own way unless interfered with. Now comes to my mind what happened in one of our Working Plan camps at Kalakallu in the Malayattoor Reserve Forest some 30 years ago. The camp site was nicely located on the top of a big rocky boulder 25 to 30 feet above ground-level. The rock had a nice expanse on which we could put up the 2 or 3 sheds required for our use, with junglewood, bamboos, reeds and reed leaves. During our camp at this nice spot an incident

happened late one evening which stuck to our minds. My Working Plans Officer, myself, one Forester and 2 Forest Guards were in the camp that evening. We had been out in the field the whole day on our inspection work and had returned to camp by evening. At dusk we were all sitting inside the shed and discussing what we had done earlier in the day. We could discern our surroundings only with difficulty in that glimmering darkness. Our peace was broken by the low growl of a tiger approaching our camp. The sound slowly approached nearer and nearer. Of course, the petromax light in the camp had already been lighted and a small fire was also burning to give us a bit of warmth. The cooks were busy in the kitchen shed; but the sound of the low growl disturbed them also, and they reported it to us with anxious faces. We all waited on the rock, holding our breath, straining our eyes to the maximum so as to get a glimpse of the tiger. The growls stopped suddenly and then with great difficulty we could make out that a big striped cat was sitting there and looking up. After a few moments we heard the same low growl retreating away from us. Probably the tiger would have thought that after all the few of us that were camping on the rock meant no threat to it although we had intruded on its domain. It looked as if it had waited at the base of the rock for a few moments to make sure that we were after all non-interfering officials minding only our work and meant no harm to it. Early next morning we got down and we could see the deep huge pug marks it had left on the semi-moist earth at the base of the rock on which we were camping. The nearly one inch deep impressions of the cat's feet gave an idea of its weight. This incident still remains a fond memory though the Working Plans Officer who was with us that day shook off his mortal coils nearly two decades ago.

This was not the first time that a big cat was seen in the forest by me. The first distant look at a member of the cat family in its natural setting dates back to the



days of our practical training which took place nearly 36 years ago. We were having our field training in the forests of Kulathupuzha Forest Range (now in the Trivandrum Forest Division). It has to be mentioned in this connection that there was a two and half year Diploma Course in Forestry under the erstwhile Travancore University which imparted training in Forestry to Ranger trainees. The instruction was given in the Engineering College, the University College and the Public Health Laboratory at Trivandrum apart from that given during study tours within and without the State. The students had preliminary practical training in the different Forest Ranges of the erstwhile Travancore State before commencement of regular instruction in the class rooms. During our practical training period Mr. N. Velayudhan Nair who was Forest Range Officer in charge of Kulathupuzha Forest Range used to take us out every morning to the field to give instruction in various forest operations, concentrating particularly on making us know a large number of botanical species. Naming trees at sight was his favourite hobby and from our standards and even from the standards of his departmental colleagues, Mr. Nair was an adept in the art of identification of species at sight. He very seldom had to observe the various characteristics closely. A distant look, and he spoke out the name of the specimen in Latin and in the vernaculars. We used to wonder at the large number of species which he could name at sight. He used to tell us that there was nothing wonderful in his ability to name species. He used to take pride in the fact that though he was only a graduate with Malayalam as his optional, he was putting to shame even graduates in biology by developing his skill in identifying the flora of our forests. My first encounter with one of the large cats took place in the forests between Mylameed and Kulathupuzha and just beside the main Trivandrum-Shencottah road. It must have been somewhere near the 35th or 36th mile. The forest on the east of the road at this locality rises from the road for

about 30 feet to a slightly elevated ridge parallel to the road and drops down gradually towards the Kulathupuzha river. On this particular day Range Officer Mr. Nair did not come with us but sent us under the care of local hillman (Kanikaran) who knew the local vernacular names of a good number of plant species. My companion who was undergoing practical training was the late lamented Mr. P. M. Phillip who after serving in the Forest Department of the erstwhile Travancore State, served in Africa for some time. Identifying whatever species we could on the way, cutting jokes with the hillman and brushing up and revising the botanical knowledge we had acquired from Mr. Nair, we had ascended to the ridge and were just commencing the descent towards the river. Then suddenly we found an animal of the size of a domestic calf one or two months old jumping away on seeing us. We were hardly 50 feet away. In our excitement we began running after the animal to get a better and closer view. But the hillman who was coming with us deterred us from satisfying our wishes saying that it was a leopard running towards its cubs and that following the mother cat would be a dangerous game for us who were novices in woodcraft.

We consoled ourselves that we would get better chances to see more animals and even at closer quarters during later periods in our official life and, of course, we were not disappointed as can be seen from the Kalakallu incident and those that occurred later.

In 1952 or 1953 there was a memorable incident on the Mekkara-Achencoil road when my Divisional Forest Officer, a man very fond of shikar, and myself were returning after a couple of days' camp at Achencoil Inspection Bungalow.

After the day's work on the final day of the camp we were discussing the huge tiger that was prowling the forests roundabout the Karuppuswamy temple on the road.

Finally we decided to leave camp at nightfall and start walking back to head quarters (Shencottah) at night hoping to see the huge tiger of the locality near Karuppuswamycoil. My Divisional Forest Officer had his .401 Jeffrey repeating rifle and I had my .405 Winchester repeating rifle to meet any emergency on the way. We left Achencoil and reached the place known as Mothalathode when our coolies warned us that we had to move very cautiously because there was in the locality a big solitary rogue elephant which disturbed persons walking on the forest road after dusk. On hearing this our D. F. O. lost his temper and silenced them by saying: "Then what for are we carrying these weapons? We shall protect you from all animals". In spite of this remark, the coolies were walking very cautiously expecting the rogue elephant to make its appearance any moment and give trouble. Our D. F. O. had his head-light fixed on his forehead and was switching it off and on saying that a continuous light beam might disturb the animals and foil our attempt to see the tiger. Expecting the tiger at every turn of the road, we proceeded cautiously. Our coolies and others were a good distance behind us though the Forester followed us closely.

We had almost left the forest and come to the last hair-pin turn of the road, thoroughly frustrated and disappointed, when suddenly we saw a pair of red fire balls about 6 inches apart horizontally and some 15 feet above us about a furlong away from us. At this glorious sight all of us got terribly excited and ran towards the pair of fire balls and would have gone to about 50 yards of it where we thought it the correct distance to stop and level our rifles on the animal. We knelt and took position, but the D. F. O. had given me very strict warning that I should not fire before he directed me, and obedience held its sway. This control kept me inert though all the while I was observing the target which was almost fixed due to the D. F. O.'s head-light beam. When he first levelled his rifle, the pair of eyes just ducked about one and a half feet showing that



the animal was crouching in preparation to jump at us. Then it rose up and again it crouched and again it rose up. All the while the D. F. O. was toying with his rifle and it so happened that the cartridges misfired and gave only a "TICK" sound when the trigger was pulled on two occasions. This upset him very badly. Feeling excited he was meddling with the bolt of his rifle. Naturally the light beam was diverted a bit and I saw the pair of fire balls turning off and lo ! the animal was gone.

Disheartened, frustrated and cursing our bad fate we reached head quarters (Shencottah) by about 4 a. m. the next morning and took some rest.

In the afternoon of the next day information came from Achencoil that chairs and such small items of furniture kept on the verandah of the Achencoil Inspection Bungalow where we were camping were being damaged by a solitary elephant on the day of our return and the report went further to say that the rogue that should have been at Mothalathode on the Achencoil-Mekkara road on the day of our journey back had gone for an inspection of the Inspection Bungalow which we had left late in the day. An elephant's inspection of a place leaves some proof of its inspection apart from its foot prints and a stab with its tusk here and there. This must have been the reason why we did not see the rogue on our way back from Achencoil since it was busy otherwise at a different place.

The last and most glorious chance of seeing a rare cat I got when I was working in the then new Nemmara Forest Division in the first week of February 1960. The animal we saw was a black panther - the most cunning of the cats.

The close of the year 1959 and the beginning of 1960 marked the preliminary operations in our Kerala State Forests by the Madras Government in connection with the implementation of the Parambikulam-Aliyar Project.

Mr. T. S. Kannan, Executive Engineer in charge, was making himself very busy clearing sites for colonies, constructing roads and such other work connected with the execution of a huge project. A 15 mile road was being constructed from Top-slip to Parambikulam, and it had of necessity to traverse the forest, and there were deep cuttings on the way to form the road-way. About 3 miles beyond a place called Sungom, an unhappy incident took place. Coolies were busily working on the road alongside the base of a high cutting. Suddenly one evening about 75 feet length of the cutting, where the cutting was about 30 feet high, slipped down unnoticed and buried nine lives—male and female—who were busy with their spades pick-axes and baskets below. Of course, rescue operations were hastened and the bodies were exhumed and taken to their camp.

The information was flashed to the Collector of Palghat who in turn passed it on to the Superintendent of Police. In the meanwhile, this sad news reached me. I was then in charge of the Forest Division. The Collector and the Superintendent of Police and I reached the spot by about noon and had a look at the bodies and the site which had devoured their lives. Preliminary enquiries into the sad accident were conducted and interim immediate relief was ordered by the Collector to the bereaved families on the spot.

We commenced our return journey late in the evening. I was driving; the Collector was at the other end of the front seat and the Superintendent of Police was between us. We were proceeding with lights on at a low speed looking around all the while so that we might not lose the chance of seeing any animal which happened to be in the vicinity. Just when we had progressed about 3 miles from Parambikulam it was very dark and in the brilliant light of the Jeep's head lights we could see a black cat about one and a half to two feet in height walking into the light beam and just sitting with its back to us about 25 feet away in line

with the right wheel of our Jeep. There were bamboo clumps on either side of the road and to the left of us was a slightly expansive swamp about 20 feet away. On the right side the ground was sloping from the right side to the swamp on the left side. Naturally we stopped our vehicle and kept watching with the head lights on. A big herd of Gaur was crossing the road in single file from the right side to the left, probably to the swamp, about 40 or 50 feet ahead of us. The cat, after about a minute or two, got up, surveyed the place and crossed the road and again sat near a bamboo clump on the left side and still within the light beam giving us a good view. But all the while the animal was not at all mindful of our presence, probably because it had other things to concentrate on at the time. The animal was only about 15 or 20 feet away from us on the left edge of the road and twitching its thick long black tail periodically. It looked as if it was waiting there impatiently hiding itself from the herd of Gaur crossing the road to the swamp. The black panther waited till the last Gaur crossed the road and then took a champion leap towards the swamp, probably directed towards the last member of the Gaur herd and disappeared. For 10 minutes we had silently watched this black panther at such close quarters. Such an opportunity to see this cat in its natural environment seldom comes even in a life time.

These are only a few of the memorable encounters I have had with the so-called wild animals. They were much less dangerous than some encounters I have had with 'wild' men. But, this being a natural history journal, I cannot write about these unnatural animals.

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# Botanical Exploration of Kerala

Professor C. A. Lawrence

Among the South Indian States Kerala is the richest in vegetation and has been famous from ancient times as the store-house of valuable medicinal plants. Kerala has a large portion of the West Coast and the main portion of the Western Ghats falls within its limits. Its tropical climate, heavy rainfall, and the mountainous nature of most parts of the State are factors contributing to the richness and diversity of its flora. A thorough study of the different kinds of plants occurring within its boundaries is essential for the economic, industrial and commercial development of the State. However, the natural plant wealth of Kerala has not been studied or exploited fully till now.

The immense scenic beauty of Kerala is chiefly due to its lush green vegetation. The meadows and valleys form green carpets. The paddy fields and backwaters present another sort of scenery with rich growth of water and marsh plants. Most of the aquatic situations are overgrown with *Eichhornia*, *Pistia* and *Salvinia*, even though water lily, lotus and *Limnanthemum* also occur here and there. Observation, collection, preservation and identification of plants can be an interesting pastime. Preparing an album of dried leaves and flowers can be a good hobby. It will give the same satisfaction as one gets from making an album of rare stamps.

One of the difficulties facing us today is the diversity of vernacular names. The same plant may have different names in different parts of the State. There is also the confusion of one vernacular name being used for more than one plant. Thus there is no uniformity in the vernacular names of plants. This is probably one of the main stumbling blocks in the way of the amateur botanist. Therefore, one of the urgent needs today is to bring out a comprehensive list

of plants with corresponding vernacular names so as to enable one to recognize a plant easily in any part of the State.

In Kerala there is a wide variety of charming situations to satisfy the urge for the study of Nature. If you look along the sea coast, there are small bays here and there which in many spots are studded with clusters of rocks. Attached to these rocks there are different varieties of sea weeds such as *Ulva*, *Caulerpa*, *Sargassum*, *Padina* and *Gracilaria*. Some of these have edible properties. Pieces of these algae can often be seen strewn along the sea shore.

In sea cliffs like those at Varkala there are deposits of lignite. The fossil plants occurring here have not been fully explored. The back-waters of Kerala present a characteristic type of vegetation with a large number of fresh water hydrophytes enduring salinity well. Mangroves occur here and there along the coast. One such spot is Vypeen Island near Coochin Harbour. *Rhizophora*, *Avicennia*, and *Bruguiera* are commonly met with here. *Rhizophora* is an interesting mangrove tree possessing breathing roots that project above the water level in order to breathe in air. The seeds of this plant germinate while the fruit remains on the tree, and the radicle projects out like a wedge. These seedlings drop into the water and grow in the marshy soil without being damaged by the saline water.

As we proceed to the midland region the landscape changes to one of hills and valleys. On these hills flourish several wild plants with beautiful flowers, such as *Ixora*, *Hedyotis* and *Knoxia*, and climbers such as *Tylophora*. *Cissampelos*, *Daemia* and *Dregia*. In scrub jungles we come across many plants such as *Melastoma*, *Osbeckia*, *Memycelon* and *Hugonia*.

One of the interesting spots in the midland region is Sasthamcotta Lake which is a fresh-water lake near Quilon.

The insectivorous plant *Drosera* flourishes in great abundance along the shores of this lake, but the water is devoid of the usual fresh water aquatic plants like water lily, lotus and *Eichhornia*. Even *Salvinia*, which is a menace in Kuttanad, does not thrive here.

In our forests there is a rich collection of rare medicinal plants and valuable timber trees. *Rauwolfia serpentina*, *Adathoda vasica*, *Terminalia belerica*, *Vitex negundo* and *Phyllanthus emblica* are a few of the plants of medicinal value. The medicinal properties of a large number of plants have not been fully understood till now. All along the Western Ghats there are several spots of botanical interest such as Agasthyar Peak, Ponmudi, Sabari Giri, Idukki, Thekkady, Munnar, Anaimudi, Malayattoor, Nelliampathy and Wynad. Observation and study of the flora and fauna of these spots can be undertaken for pleasure or profit. Thus there is immense opportunity for the exploration of plants in all parts of Kerala State. This is an activity in which the amateur naturalist can join. If the professional botanist helps and encourages the earnest amateur, the gain can be as great as the pleasure can be mutual.

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# There is Nothing Fishy About Fish.

V. K. Puthoor

Almost everybody, especially in Kerala, is quite familiar with fishes, but very few have realised that quite a lot is still to be known about them. This is not surprising, for there are about 25,000 species of fishes in existence today with more coming to light almost every day. An unknown species of mammal or bird may not exist, but 'the dark unfathomed caves of ocean' and even our tanks and streams, contain many varieties which have yet to be discovered and named. Mammals and birds are easy to observe and study in their natural habitats, but fishes hide themselves away and elude observation. It is very difficult to study their ways of life and behaviour without capturing them and rearing them in suitable aquaria.

Fishes were kept in captivity and reared even in ancient times, but it was mainly for culinary purposes. The art of keeping them in aquaria for scientific study is scarcely a century old. The Chinese were the first to keep fishes as pets, and gold fishes were evolved by them from ordinary carps about a thousand years ago. Today, the keeping and breeding of fishes in aquaria has become a popular hobby all over the world. But not many hobbyists care to learn anything about their pets beyond the basic facts regarding food and water.

Fishes come in all sorts of shapes and sizes, and are found in all sorts of waters from shallow streams, scarcely two or three inches deep, to the abysmal depths of the oceans, four to five miles below the surface. They range in size from the tiny one-inch Rasbora to the gigantic Whale-Shark which grows upto 45 feet in length. As to coloration, there is no limit to the brilliant hues and enchanting countershading in multiple colours which fishes exhibit. As for shape, even though most of them answer to our conventional idea of 'fish-shape', there are quite a few



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which come in the most bizarre and grotesque shapes: think, for example, of the Hammer-head Shark and the Scorpion Fish !

Not all of us can don face-masks or learn scuba-diving to watch these wonderful creatures in their still more wonderful and beautiful world. And it is here that the art of the aquarist comes to our help. Apart from the importance of enabling scientists to study their anatomy, food, and breeding habits and ecological interrelations, it also enables the humble nature-lover or hobbyist to watch and enjoy healthy, living fishes in a reasonable reproduction of their natural habitat. It is not only a hobby that gives one hours of aesthetic pleasure; it is also one that can be indulged in by even those with the least amount of money and time to spare. Besides, contrary to popular belief, it is not necessary to invest large amounts in costly equipment, as even a few humble cement tubs or clay pots can serve the purpose. Once he has made a beginning, the aquarist will find himself becoming engrossed with a strange and fascinating world. He will slowly come to study not only the habits and life cycle of the fishes but also much about water chemistry aquatic plants, aquatic insects and their interrelations in his aquaria, every one of which, he will discover, is a self-contained miniature lake or sea.

In this age, when pollution and man-made alterations to the environment are slowly exterminating a sizable segment of the world's fauna, it is all the more desirable on our part to take a keen interest in our local aquatic fauna. In this the amateur aquarists of Kerala can contribute their mite by making some attempts to study the habits of the fishes in our local waters whether these be ponds, streams or rivers. We have in our waters a large variety of fishes which are ideally suited for rearing in aquaria. And it is a great advantage that in our equitable climate we do not require heating equipment or lamps to compensate for inadequate warmth and sunlight. Selective

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breeding may well produce colourful and interesting varieties which could capture the fancy of aquarists all over the world and earn us valuable foreign exchange as well.

I shall attempt a brief introduction to some of our common fishes which can easily adapt themselves to either indoor or outdoor aquaria. These fishes, though not as colourful as some of the exotic aquarium specimens, are still very attractive in their own way.

There are a number of species belonging to the Carp family in our fresh waters. Some of these, of course, grow to large sizes and may not be easy to keep in small aquaria. But the smaller members of this family are very attractive and quite active too. They do not require exacting water conditions and they breed easily. Of these, the smaller Barbs, Rasboras, Danios, and Brachidarios are especially worth mentioning. Amongst the Barbs some of the striped varieties are extremely attractive and show good coloration. Amongst the Rasboras there are many interesting varieties, and they are always quite active. The Malabar Danio, which is common in our hill-streams, is a very attractive fish. The Brachidarios which do not exceed two inches in length, look their best in small schools

Another very gentle and colourful fish found throughout Kerala is the Orange Chromide (*Etroplus maculatus*). This fish can compete with many imported tropicalls in colour and beauty. Another interesting point in its favour is that it displays the parental care of eggs and young ones typical of all Chichlids.

Another very attractive fish, quite common in our waters, is the Panchax, especially the Blue Panchax (*Aplocheilus lineatus*). Viewed under proper light, this fish shines with iridescent red-greens and a golden sheen. It also adapts itself easily to aquarium life. In Europe and America hobbyists have developed bigger varieties with brighter colours.

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These are but a few of the fishes which are quite common in our fresh waters and which are already popular inside and outside India as good aquarium fishes. But we have also a large number of fishes belonging to other groups which may be of interest only to specialists. These are the Loaches, Snakeheads, Eels and Catfishes. These fishes, because of their special requirements, may be a bit difficult to keep, but the enthusiast who attempts to keep them will find them greatly rewarding.

Our water sources also contain a large number of small fishes which are still not well studied. Unfortunately, as most of those are not of much importance as food fishes, no systematic study has been made of their habits. Similar is the case with many species of fishes which inhabit the shallow brackish waters of our river-mouths and backwaters, which, though not strictly fresh water fishes, are very colourful and can be slowly adapted to fresh water aquaria. As many of our school laboratories have started maintaining aquaria as part of their nature-study programmes for children, will it not be much better to stock these school aquaria with indigenous fishes than to fill them with Black Mollies and Swordtails?

It is quite certain that our vast network of deep rivers, hill-streams and myriads of ponds contain a large number of fish species still unknown to science. One peculiarity of fishes is that some species are limited to very restricted areas. So, with a little effort and some knowledge, a dedicated enthusiast can do much to bring to light new species which may be restricted to a small locality. If we can generate the required enthusiasm in our nature-lovers, they may be able to make important contributions to science. But, whether they make sensational discoveries or not, they will find the activity an enormously enjoyable recreation.

---



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# Conservation

S. S. Nair

The concept of environmental conservation is gaining wider acceptance all over the world. The term is self-explanatory. By advocating the need to preserve, it acknowledges the deterioration of the human environment, that there is less to the quality of life today, and that what had been taken for granted as part of our surroundings in the past is either no longer there or has been greatly reduced and altered. Free space, breathable air, and uncontaminated water have all become scarce. The ever-increasing inorganic products of man have sent their deadly tentacles into every bit of living matter on earth. The possibility that the reckless activities of the exploding human population have deteriorated the environment, will soon exhaust most of the natural resources, and ultimately spell the doom of mankind unless checked soon, has dawned on well-informed people. The need for redressing the lost ecological balance and of a new outlook in the dealings of man with his environment is the basis of the concept of environmental conservation.

The life forms and the inorganic environment that sustains them on the planet earth form a delicately balanced intricate complex wherein each component is inextricably interwoven with all others, both immediate and far removed. The smallest independent unit of this complex, namely the natural ecosystems, over the millennia have evolved as ever-changing dynamic entities. But the rate of change in them is prevented from reaching unfavourable extremes by the built-in complexity and intricacy. The biotic components of the ecosystems are self regenerating and, due to optimal recycling, there is no exhaustion of the nonrenewable nonliving components.

Man, at an ever increasing pace, through the development of agriculture, animal husbandry, technology and by uncontrolled population expansion, has overcome

all the ecological checks on him. For easier manipulation and short-term economic gains, all over the globe he has drastically oversimplified the natural ecosystems. Examples of this are the monocultural practises in agriculture and forestry, which render the ecosystem susceptible to a breakdown. Misuse, wasteful practices and ignorance threaten to exhaust the available supply of nonrenewable natural resources of all kinds, from water and soil to fossil fuels and mineral ores. What is not used up, as in the case of sea water, is being polluted. The extensive use of fossil fuels releasing gaseous waste into the atmosphere has led to subtle alterations in the composition and properties of the protective blanket of air. Large scale thermal pollution has also affected the atmosphere and the waters. The destructive influence of man on terrestrial vegetation through agriculture, cattle grazing and deforestation has led to irreparable soil loss and sterility of productive land. The multitudinous adverse influences of chemical pollution and oil pollution of the oceans are as yet ill-understood but could include such drastic effects as reduction of the photosynthetic activity of the phytoplankton.

Though of a different nature, other symptoms of the same malady are also becoming evident. Unchecked urbanization and population pressure create inabsorbable stresses in the human social structure and individual behaviour leading to social disruption and chaos. Maladjustments within human society and between the environment and man are but facets of the same root cause - population expansion beyond tolerable limits.

This situation is not entirely new. Many civilizations of the past were buried in the avalanches of the environmental backlash they themselves had triggered off. The magnitude of the problem is much larger today and the degree of the damage far greater. Yet we, while boasting of our reason and foresight, have failed to heed the lessons of history.



Our present outlook, based as it is on western thinking and education, is infused with the exaggerated notion of a deadly struggle with the relentless forces of nature and the eventual triumph of man. Little do we realise that mastering nature is only possible through obeying natural laws, and that without taming our own nature, no taming of nature is possible. We fail to grasp that man and the artificial environment of his creation are an inseparable part of the larger natural systems and processes and are incapable of independent existence. Since such a concept challenges many presuppositions and ingrained notions, it has not found easy acceptance.

From ignorant unconcern we are awakening to the state of concerned awareness of the biological realities confronting us, of the fast approaching environmental crisis of our own creation which could very well doom us.

Though aware of the silent springs and ravaged landscapes, we are not sufficiently shocked to correct our wrong attitude. By adopting the easiest way out, that of deferring action, we cannot evade the doom stalking us. Perhaps the critical point of no-return has been passed already, and human beings are fated to vanish from the face of the earth before realizing their own potential. Perhaps immediate and massive restoration can save us and the rest of life on this planet. There is no magic formula, nor can we escape the doom by colonising some other planet. Only an immensely costly effort to reverse the present and to repair the damage already done can save our sole haven - the planet Earth.

The deleterious effects of man on his habitat out across political and geographical boundaries. Hence corrective measures also need be on a global footing. The present system of the affluent few plundering what remains of the natural resources to enhance their luxury while the vast majority wallows in abject poverty, has to end. International co-operation in pooling available knowledge, in extending it and drawing up measures of optimal utilization of what is available for all humanity are as yet impractical

While our knowledge of the multitudinous interactive processes in the biosphere and the effects of man on them remains virtually unknown, international efforts to gather scientific data on man's habitat have been pathetically few. Even in those regions of the world where industrialization and 'development' have not irreparably damaged the environment, there appears to be little awareness of the need to halt 'progress' along the provenly suicidal lines of unintelligent industrialization. Governmental action, even at the price of slowing down material growth, should direct national development along ecologically acceptable lines. Forceful educative methods implemented by each state and society can form a viable basis for conservation and restoration-oriented future global efforts.

Though not as pressing or apparent as the accelerated exhaustion and pollution of our habitat, the gradual erosion of the quality of life on earth is also causing great concern. The need to preserve wildlife and the wilderness is part of the attempt to retain some of the quality of life. The continued existence of a pristine ecosystem or an obscure animal may not have any immediate bearing on human survival, but the quality of the environment has to be considered independently of the gross national product. While tides of humanity are sweeping out of existence other life forms not of immediate value to man, we have to wake up to the fact that human existence, rooted in the natural environment and subject to the same natural laws, is also being foreshortened. The immense habitat and genetic diversity that we are squandering away now form our sole security for continued survival. Moreover, ethically, we have an obligation to posterity, that of preserving our heritage, that is, our environment, intact. Certainly, we cannot consider man's creations alone as our heritage and eliminate everything else in nature that is not of direct use. We have also the responsibility to ensure the perpetuation of all other living things that have evolved along with us through the immensity of time.

# Some Reflections on our Forest Developmental Projects

S. Parameswaran

These are days of progress and development on all sides. Development implies improvement, but it so happens that improvement in one sense is despoliation in another. Not long ago we had vast expanses of natural forests, but most of these areas have been modified in different ways to meet various demands, some for timber production, some for food production, some for housing colonies and the like. Good timber, adequate food, enough shelter for an ever-growing population are all necessary. But, in trying to provide these necessities, we have too often ignored the long-term consequence of depriving the land of its luxuriant forest cover.

The forests of Kerala were being utilised according to scientifically prepared Working Plans which used to be sanctioned for ten-year periods. These Working Plans used to prescribe methods of working suitable for the different areas and ends in view. Some areas were set apart for raising plantations of more valuable timbers, some for growing soft woods, some for growing pulpwood etc. Other stretches of forest were allotted for working under the selection system, in which only a small number of selected trees are removed from the forest. Not more than 2 or 3 trees were felled per acre, and so this system went a long way to ensure the retention of most of the original flora in the area and involved only very slight disturbance of the ecosystem. Areas which are unworkable because of inaccessibility are conveniently set apart for preservation. Unfortunately, such areas are too few and are becoming easier of access due to the opening up of the surrounding forest, the laying of new roads, improved transport etc.

The traditional Working Plan system did much not only to preserve the indigenous flora and fauna but also to meet the needs of man in a regulated manner. Under this



system the forests were veritable geese which regularly laid golden eggs. Followed the population explosion, and the needs of man in different fields increased beyond all proportions. The first and foremost need was food. More mouths to feed meant more food and more food meant more land for the farmer. Naturally, more areas of forest had to be cleared to provide arable land. Practical requirements apart, there were also political considerations: the landless poor had to be given a new status. We have now reached a stage when further extension of cultivation is almost impossible. We have to concentrate on intensive cultivation to produce more food and give up ideological notions of the right to own land.

Progress in the modern world is gauged by the progress made in the field of Industry. Wood-based industries depend on forests for raw material. Match manufacture, paper manufacture, veneering, plywood manufacture, packing-case manufacture are a few of the instances in which timber from the forests forms the basic raw material. The consumers of this essential raw material have yet to realise that the source is not inexhaustible. If supplies should be available perpetually, care should be taken to see that for each tree removed two are planted. It will be said that the Forest Department pursues this policy with singleminded devotion — that all over the State innumerable plantations of eucalyptus have enveloped our hills. The evidence of it is there for all to see. These extensive eucalyptus plantations were started in order to provide pulpwood for the manufacture of rayon-grade and paper-grade pulp. But not every plantation has been a success. In the higher elevation areas of Peermade and Devikulam eucalyptus plantations do thrive, but the position in areas near the Chalakudi and Periyar rivers gives room for anxiety due to a disease which has appeared recently. Anyway these plantations have caused clearance of extensive patches of natural forest in the Chalakudi Forest Division. In Peermade and Devikulam it was mostly

the grasslands that have been planted up and there was not much clearing of natural forest. It was more a rehabilitation of grassland with eucalyptus.

Rubber began to be planted by the Forest Department in 1960, and this resulted in the formation of the Plantation Corporation. Inevitably, vast areas of forest were metamorphosed into rubber plantations. These became hives of human activity and very soon both the original flora and fauna disappeared for good.

Further inroads into natural forest were made by the State Farming Corporation, committed to supplying the sugar industry with enough cane to keep the wheels running. Large areas of virgin forest were cleared and sugarcane was planted on a large scale even in the heart of the forest. Since sugarcane attracts the elephant even more than honey attracts the bee, a conflict was bound to develop between the custodians of the plantations and the protectors of wild life. Of course, it is the conservationist who invariably loses the battle. Another agency which poses a serious threat to our natural forests is the Forest Development Corporation. Part of its function is to convert more forest into man-made plantations.

Like the proverbial last straw on the camel's back, comes the demand for more and more hydel and irrigation projects. All rivers originate in forests. The sight of water flowing in the rivers tickles the imaginative engineer who resolves at once that this resource of nature should not go unharnessed. The only question is, shall this water be used for irrigation or for the production of electricity? He prepares a grandiose project report showing all the advantages of exploiting that particular river. A huge dam is soon constructed, a beautiful lake is formed, and hundreds of acres of virgin forest get submerged, wild life is driven away, shot out, or simply drowned. Even before the formation of the reservoir, deforestation and the disturbance of all wild life start. Tons of explosives are used up, long

rows of bungalows, labour colonies etc. are constructed and the inevitable happens. Most of the wild animals withdraw into the patches of forest which survive all this development; many are killed for the pot and for 'sport'. Thus we lose more and more of our already impoverished wild life.

The time has really come to put a stop to this unbridled clearing of forests on one excuse or another if the few surviving species of our fauna are not to be wiped off the face of the earth. Replacing natural forest with monocultures is a suicidal policy. Thoughtless multiplication of dams has already altered our climate and upset the time table of nature. Rain becomes unpredictable, erratic and scanty; urban water-supply schemes fail; and the immediate remedy recommended is the building of a bigger and deeper reservoir at the expense of more acres of virgin forest !

We cannot any longer keep conservation and exploitation separate. We should not delude ourselves with the thought that we have served the cause of conservation by devoting one week per year to a ritual 'tree-planting' or an equally meaningless 'preserve wild-life' campaign. What we have to realise is that it is not our conscience alone that has to be satisfied. The conservation of our forests and their inhabitants has become a vital necessity. If we go on playing with them as we are doing now, we do so at our peril.

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## REPORT OF THE KERALA NATURAL HISTORY SOCIETY

For the years 1974-'75

A state like Kerala, rich in flora and fauna, and undergoing habitat alteration at an alarming rate due to population pressure, needs public consciousness for the perpetuation of its natural wealth. More than governmental agencies, independent organizations and clubs can function as foci for bringing together the amateur nature lovers and conservationists, disseminate the concept of nature-preservation and help channelize constructive activity. Though we have in India the highly reputed and well established Bombay Natural History Society, the very vastness of the country, the immensity and the pressing nature of the task of habitat preservation make it necessary to have smaller regional societies with a restricted territory for their activities. With its high level of literacy and intellectual tradition, Kerala provides suitable environment for such an organization. Though an attempt was made a quarter of a century ago to start a Natural History Society for Kerala based at Trivandrum, the attempt did not succeed.

At a meeting held on the 16th of February 1974 in the Trivandrum Zoo library hall, attended by 17 persons, a decision was taken to make a second attempt. A steering committee of 10 members was elected and empowered to get application forms printed, canvass membership and collect subscriptions from new members. It was also decided to draft a constitution for the society and register it with the Registrar of Societies. Application forms were posted to all nature-lovers known to the original 17 members and they were requested to inform others known to them.

At the first general meeting of the Society, held on the 30th of March 1974, it was decided to hold regular monthly meetings in the Trivandrum Zoo library hall on the fourth Saturday of every month at 5-30 p. m. At the



meetings, talks and discussions on various aspects of natural history and conservation were to be conducted. It was also decided to publish a journal of the society at a later date.

The Kerala Natural History Society was officially registered on the 26th August 1974 under 'The Travancore Cochin Literary, Scientific and Charitable Societies' Registration Act XII of 1955.

## ACTIVITIES

### Public meetings

27th April 1974. Talk by Mr. V. K. Puthoor on 'Aquarium keeping as a hobby'.

22nd June 1974. Talk by Mr. S. S. Nair on 'The Ecology and Fauna of the Eravikulam - Rajamalai Sanctuaries'.

27th July 1974. Talk by Mr. C. Mohankumar on 'The Birds of Trivandrum City'.

24th August 1974 Talk by Mr. S. Parameswaran on 'The Forests of Kerala - Then and Now'.

28th September 1974 Talk by Mr. K. K. Neelakantan on 'Field identification of Birds'.

26th October 1974. Talk by Dr. N. R. Prabhoo on 'The Ecosystem of the top layer of the Soil'

25th January 1975 Talk by Mr. M. Balakrishnan on 'The Scent marking behaviour of the Shrews'.

During the same period field trips were conducted, to the Veli estuarine habitat, the Ponmudi Hills, the Kariavattom Campus and Kanyakulangara, the expenses of which were met by the participants themselves.

Regular monthly meetings were discontinued as the response even from members residing in Trivandrum was very disappointing.

Application forms were posted to 203 persons by 20-5-1975 and the current membership is 62 including 9 junior members.

The steering committee nominated on 16-2-1974 was re-elected to form the executive committee of the Society at the first General Meeting held on the 30th of March 1974. The executive committee of ten members (given below) held its first meeting on 27-4-1974. Meetings were held on 11-5-1974, 8-6-1974, 7-7-1974. 11-5-1975 and 20-3-1976, to transact various matters such as the drafting of the constitution, registration of the Society, fund collection for the Journal etc.

### **The Executive Committee**

- |  |                  |
|--|------------------|
| Prof. K. K. Neelakantan,<br>Prof. of English<br>24/1337, Pulimoodu, Trivandrum.  | <b>President</b> |
| Mr. S. Parameswaran,<br>Retd. Divisional Forest Officer.<br>Parvathi Vilasom, Thycad, Trivandrum.                            | <b>Treasurer</b> |
| Mr. N. R. Nair,<br>Deputy Conservator of Forests,<br>Vijayantha, 14/320 Jaya Mansion Compound,<br>Vellayambalam, Trivandrum. |                  |
| Dr. C. J. Chandra,<br>Veterinary Surgeon, Zoo, Trivandrum.   |                  |
| Mr. P. R. Chandran,<br>Superintendent, Zoo, Trivandrum.  |                  |
| Dr. N. R. Prabhoo,<br>Lecturer, Univ. Dept. of Zoology.<br>Kariavattom, Trivandrum.  |                  |
| Mr. V. K. Puthoor,<br>Scientific Assistant,<br>Meteorological Office, Observatory, Trivandrum.                               |                  |
| Mr. D. Krishna Warrior,<br>Engineer.<br>Vasanth Vihar, Kumarapuram, Trivandrum.  |                  |
| Mr. K. V. Sreenivasan,<br>Student,<br>Govardhanam, 25/829, Vanchiyoor, Trivandrum.   |                  |

Mr. S. S. Nair,

Research Scholar, Univ. Dept. of Zoology,  
Kariavattom, Trivandrum.

Secretary

Mr. S. Parameswaran left Trivandrum for personal reasons during 1975 and in his absence the Executive Committee authorised the President to look after the finances of the society for the time being, acting as Honorary Treasurer.

### The Journal

At the first general meeting of the Society it was decided to publish an annual at the end of the first year, incorporating the salient conservational issues discussed at the monthly meetings, specially for the benefit of the members outside Trivandrum. The monthly meetings were poorly attended and the paucity of funds restricted outdoor projects. It was decided to postpone the collection of the second annual subscription till the publication of the first annual journal. The publication was delayed till 1976 due to lack of funds, and this issue is brought out almost exclusively due to the efforts of Mr. S. Parameswaran who collected Rs. 970/- as advertisement charges. We are also grateful to the various business and industrial establishments who were kind enough to support our venture by advertising in our Journal. Sri P. R. Chandran too deserves our thanks for securing two half-page advertisements. The whole-hearted co-operation of the Director and the staff of the Trivandrum Museum and Zoo in both providing the venue for the meetings and for actively participating in them is gratefully acknowledged.

(Sd.) Secretary

S. S. Nair,

Vottuvila House,

Kannamoola,

Trivandrum-695011.



## List of members of the Kerala Natural History Society

- Dr. K. M. Alexander** Professor and Head of the Department, Dept. of Zoology, University of Kerala, Kariavattom-695581.
- C. P. Noorul Ameen** Research Officer, State Institute of Languages, Nalanda, Trivandrum.
- S. Asokan** Prasanth, Manvila, Kulathoor P. O., Trivandrum.
- K. Rajendra Babu** Curator, Botanical Gardens, Trivandrum.
- M. Balakrishnan** Univ. Dept. of Zoology, Kariavattom, Trivandrum.
- K. Thomas Bevin** Lecturer in Botany, J. N. College, Kavaratti, Union Territory of Lakshadweep-673555.
- Dr. C. J. Chandra** Veterinary Surgeon, Trivandrum Zoo.
- P. R. Chandran** Superintendent, Trivandrum Zoo.
- Jacob Cherian** Dept. of Zoology, Christian College, Chengannur.
- D. V. Cyril** Proof Reader, Language Institute, Nalanda, Trivandrum.
- V. M. Dileep** T. C. 22/783, Thycaud, Trivandrum.
- A. C. Fernandez** Triview, Pettah P. O., Trivandrum.
- R. Parameswara Iyer** Principal, Govt. College, Pattambi.
- S. Parameswaran** Secretary, The South Indian Plywood Manufacturers' Association, 8/205 C, Empress Building Calicut.
- S. Jayachandran** Pandivila, Chingeli, Kadakkal-691536.
- Dr. K. J. Joseph** Professor and Head of the Department of Zoology University of Calicut, Calicut Univ. P. O.
- Samuel Joseph** Lecturer in Zoology, Christian College, Chengannur.
- K. N. Kailas** 24/1337, Pulimood, Trivandrum.
- Dr. G. K. Karanavar** Lecturer in Zoology, M. G. College, Trivandrum.
- C. Mohankumar** 1 Santhi Nagar, Press Road, Trivandrum.
- V. Vijayakumar** Lakshmi Sadanam, Thamalam, Poojapura, Trivandrum.
- K. Mahadevan** 14/1266 Vazhuthacaud, Trivandrum.
- Dr. Jose K. Mangaly** Senior Research Officer, State Institute of Languages, Nalanda, Trivandrum.
- K. I. Mathew** Divisional Forest Officer, Punaloor.
- Dr. D. N. Mathew** Lecturer, Univ. Dept. of Zoology, University of Calicut-673635.
- C. Mohandas** Melakuruvilai, Meenachel P. O., Via Kaliyikkavilai Kanyakumari District.
- G. Moni** Conservator of Forests, Trivandrum.
- Dr. A. N. Namboothiri** Prof. Univ. Dept. of Botany, Kariavattom

- K. K. Narayanan** Junior Research Officer, State Institute of Languages, Nalanda, Trivandrum.
- K. K. Neelakantan** Professor of English, University College, Trivandrum.
- P. N. Chandrasekharan Nair** Research Officer, Univ. Dept. of Botany, Kariavattom, 695581.
- K. K. Nair** Chief Conservator of Forests Trivandrum.
- V. R. Krishnan Nair** Assistant Conservator, Trivandrum.
- K. Nanu Nair** Divisional Forest Officer, Nemmara.
- N. R. Nair** Deputy Director, Project Tiger, New Delhi.
- V. K. Sasikumaran Nair** Lecturer in Zoology, N. S. S. College, Nilamel.
- S. S. Nair** Univ Dept. of Zoology, Kariavattom Trivandrum-695581.
- G. T. S. Nair** Divisional Forest Officer, Trichur.
- N. Vasudevan Nair** Superintendent, Trivandrum Museum.
- M. M. Oommen** Univ. Dept. of Zoology, Kariavattom.
- K. Parameswaran Pillai** Director of Museums and Zoos, Trivandrum.
- V. John Philipose** T. C. 1/1218 A, Burma Road, Kumarapuram, Tvm.
- N. G. Pillai** Bellevue, Dewans Road, Ernakulam.
- R. Narayanan Potti** T. C. 34/1958, West Fort Street, Trivandrum.
- Dr. N. R. Prabhoo** Lecturer Univ. Dept. of Zoology, Kariavattom
- M. K. Prasad** Professor, Dept. of Botany, Maharajas College, Cochin.
- V. K. Puthoor** Scientific Assistant, Meteorological Office, Observatory Trivandrum.
- G. Pythal** Chanduvarath House, Nettisseri P. O Trichur Dt.
- R. Ramachandran** Drawing Master, M. I. High School, Ponnani.
- S. Ruby** West Maranil, 24/68, Karapuzha, Kottayam.
- S. Santhi** University Dept. of Zoology, Kariavattom-695581.
- E. Sreedharan** Lecturer in History, University College, Trivandrum.
- B. Sreekumar** Narayana Vilas, Thirunakkara P. O., Kottayam-686001
- N. Sreekumar** Kuzhivila Theppu Veedu, T. C. 45/738, Iranimuttom, Trivandrum.
- K. V. Sreenivasan** Govardhanam, T. C. 25/829, Vanchiyoor, Tvm.
- R. Suryanarayanan** Principal University College, Trivandrum.
- M. R. Thampan** Research Officer, Language Institute, Nalanda, Tvm.
- M. F. Thomas** Sub Editor, Language Institute, Nalanda, Trivandrum.
- V. J. Thomas** Govt, Analyst, Drugs Testing Laboratory, Trivandrum.
- Emmanuel Unni** Kalapurakal, Edacochi, Cochin-6.
- Babu Varghese** Puthan Vila, Pongumood, Trivandrum.
- D. Krishna Warriar** Vasantha Vihar, Kumarapuram, Trivandrum.

## KERALA NATURAL HISTORY SOCIETY

## Statement of Receipts and Expenditure as on 31st March 1976

	Rs.	Ps.	Rs.	Ps.
<b>INCOME</b>				
Membership fee collected	278	...		
Contributions from three executive committee members	41	21		
<b>EXPENSES</b>				
Stationery			38	07
Postage			36	75
Typing charges			21	50
Printing charges: (application forms, letter paper, receipt book)			83	...
Charge for making block of the emblem and Rubber seals			21	...
Fee for registering the society			25	...
Balance in hand			93	89
<b>Total</b>	<b>319</b>	<b>21</b>	<b>319</b>	<b>21</b>



## LIST OF ADVERTISERS

	Page
Travancore Plywood Industries Ltd., Punalur	5
കേരളസംസ്ഥാന ഭാഗ്യക്കുറി	... 32
Vijaya Press, Palghat	... 32
Sylvan Plywood Mills	.... 38
Mysore Commercial Union Ltd.	.... 40
Srinivasa Industries, Mysore	... 53
Phoenix Plywood, Kottayam	... 54
The Indian Plywood Manufacturing Co. Ltd., Bombay	56
Hunsur Plywood Works Private Ltd., Hunsur	.... 58
Venus Plywood Company, Nemmara	... 60
Lakshmi Vihar, Quilon	... 60
Travancore Timbers & Products, Kottayam	... 62
Bharathan & Co., Quilon	... 62
A Well Wisher	... 71
Polyformalin Private Ltd., Cochin	.... 72
South India Plywood Industries, Kottayam	... 72

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